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and Art  
of  
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# The Science and Art

...of...

# Penmanship.

. . . A Text Book for . . .

## Schools and the Home,

...By...

G. W. HENDERSON, M. D.

For eighteen years a teacher in the public schools of Ohio; Author of the "Tabulated Manual of Anatomy, Physiology, and Hygiene;" Monograms on "The Alimentary Canal and its Appendages;" "Metabolism," etc.

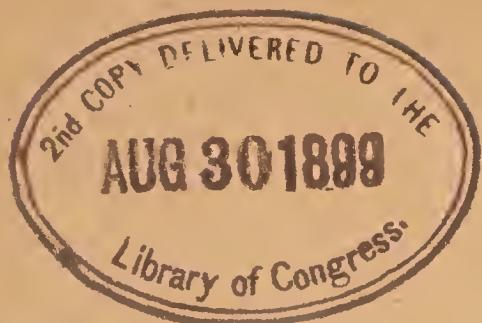
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1899.

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G. W. Henderson & Son, Publishers,  
West Cairo, Allen County, O.

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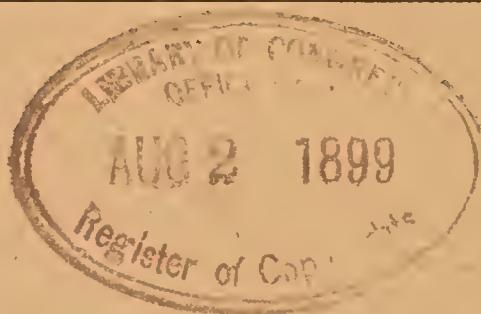
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*To my wife, Mary Emma Henderson, and son, Harry  
Harold Henderson, who have so faithfully aided me, in  
particular, and to all fellow-teachers and others interested  
in the cause of education in general, this work is respect-  
fully dedicated . . . . .*

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# .. Preface ..

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**T**HE TITLE, "Science and Art of Penmanship," indicates at once the intent and scope of this volume.

What, when, and how, are problems every teacher is endeavoring to work out in a practical, common sense way so that the interest of pupils may be daily renewed and valuable time saved and annoying experience in recitations avoided. It is not the peculiar views of any one person alone, but the views of many, systematized and teachable, that must ever prove invaluable to the teacher who, after all, must take his own course.

The fact that the study of Penmanship should be carried along the same as orthography, geography, grammar, etc., to a complete understanding of the subject before passing to more advanced studies has long been recognized, we believe, but not practically applied.

To present the entire subject in text-book form so as to be adapted to any and all "systems" of copy books to take its place along with other studies in class work is a feature which has hitherto escaped notice. It is as important to assign daily lessons in penmanship as in physiology, geography, grammar, etc.

There are a great many excellent systems of copy books now published, each system doing a great and good work in the field for which it is designed — and to all of which we acknowledge indebtedness. The profession owes a debt to any author who aims at concentration instead of diffusiveness because much which is spread out in many volumes may be used to greater advantage in a one volume treatise where thoroughness, modernness, accuracy, and convenience of arrangement are especially important features. It is not the aim of the author of this work to appear isolated and claiming originality where none exists, but it *is* his ambition to be of use in a field where years of annoying experience has taught him that a text-book in teachable form on Penmanship, which inspires to daily research and draws from pupils intelligent recitations from day to day, should be in the hands of every teacher and student.

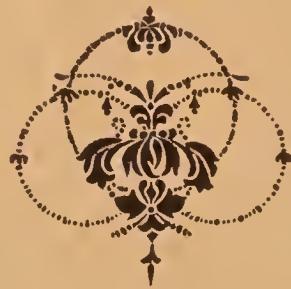
It is, perhaps, a mistaken idea that students must be sent to special schools and much expense incurred to acquire a thorough understanding of penmanship. There is no place it can be so well learned as right in our public schools and the home reading circles. The course of instruction need neither begin too high nor end too low. A mastery of the science and art of penmanship is required. We hereby acknowledge the aid of authors and teachers whom we can no more repay for what they have done for us than can a man in

any profession repay the debt he owes for the rich dowry of knowledge garnered since the birth of letters and bestowed upon him when he espoused it. But for the great army of instructors standing amid the ruins of past theories surrounded by the mingled debris of error and fact, loyalty and love, respect and reverence will ever be uppermost.

G. W. HENDERSON, M. D.,

May, 1899.

West Cairo, Ohio.



**SUGGESTIONS TO THE TEACHER.**

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Although penmanship should be taught like grammar, orthography, history, etc., so far as regular recitations are concerned, yet in addition to the text all other available aids and helps should be brought to bear, from time to time, upon the subject. Accuracy and facility in the use of written language are the chief ends to be secured in the study of Penmanship. To secure these a thorough acquaintance with the elements, forms, structure, and laws of written language is indispensable; and a practical knowledge of these must be acquired by patient, persistent, painstaking practice in the critical analysis and synthesis as well as in the execution of letters, syllables, words, and sentences. Like other studies the entire field of Penmanship must be diligently surveyed to insure a complete and comprehensive knowledge of the subject. This gives a wide range for study. The chapters in this volume need not be taken in rotation unless it would serve the best interests of the pupils. The manner of recitations as in other common school branches vary owing to the pupil's attainments and aptness to learn. A class of six to nine year old pupils should be thoroughly drilled on position of the body, arms, hands, eye,

feet; pen-prehension and poising; neatness, orderly arrangement, and the care of the person, paper, pen and ink. At the same time a discussion of the differences and resemblances of elements, letters, syllables, words and sentences should be commenced. At ages from nine to twelve tendencies and habits should be patiently and persistently watched with a view to a correct methodical foundation. Movement in all its details should be brought as near to completion as possible, and a thorough discussion of the manner of execution, practice, or production should be commenced. Analysis and synthesis; letter writing, speed, uniformity, and definitions of terms should receive careful and continued attention. At ages from twelve to eighteen years and upwards, the whole field of penmanship should be sought and passed before all in review. Capitalization and punctuation should receive particular attention since the sentence is not written till it is punctuated. The analysis of subjects or themes and the writing or mechanical execution thereof; abbreviations, drawings of maps, and all kinds of forms; notes, mortgages, deeds, wills, articles of agreement, methods of transfer, making out bills, the ordering of goods, etc.; the "Question Method," that of giving a list of ten or fifteen questions to be answered and discussed at the recitation following is to be commended. The "Topic Method," that of giving a topic or theme to be outlined and discussed the day following is profitable, since it throws the pupil upon

his own resources and forces him to carry himself and to incarnate his thought by pen, pencil, or crayon into written language. Unless penmanship does this it fails of the main good possible to it. "I know but can not tell it" should not be the condition of a pupil, and for this reason we have given considerable attention to definitions. Lessons should be assigned — usually short — and each lesson reviewed, and each topic and every difficult point should be clearly illustrated and each member of the class reached. Growth and development require time. The only way to strengthen the mind is to make it work. The teacher must guide, not carry, his pupil. Practice by varied and exhaustive drill in letter writing, business forms, important themes, arranging and rearranging of parts, criticism as to plan or framework, arrangement, execution, proper use of capitals and punctuation marks, italics, abbreviations, spelling, alignment, parallelism, style, size, slant, shade, spacing, accuracy, etc.

Pupils thus instructed, as we have observed, become excellent critics — a point in a pupil's knowledge which every progressive teacher appreciates. We have aimed at thoroughness and convenience of arrangement by placing the subject in the following order :

Chapter I, "History."

Chapter II, "Position."

Chapter III, "Analysis and Synthesis."

Chapter IV, "Movement."

Chapter V, "Execution."

Chapter VI, "Spacing and Shading."

Chapter VII, "General Practice or Production, and Drawing."

Chapter VIII, "Capitalization, Italics and Abbreviations."

Chapter IX, "Punctuation."

Chapter X, "Letter Writing and Business Forms."

Chapter XI, "Narcotics."

The frame-work of the subject is given by diagram at the beginning of each chapter, and a list of review questions is given following each chapter.

# CHAPTER I.

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## HISTORY.

- 1. Phœnicians
- 2. Phœnician Language .....
  - 1. Arabic.
  - 2. Aramaic.
  - 3. Hebrew.
- 3. Invention of Letters .....
  - 1. Mode of Invention.
  - 2. Where ?
  - 3. When ?
  - 4. By Whom.
- 4. Alphabet .....
  - 1. Phœnician.
  - 2. Hebrew.
  - 3. Arabic.
- 5. Documents .....
  - 1. Oldest.
  - 2. Arrangement.
  - 3. Materials.
- 6. Chinese Writing .....
  - 1. No Alphabet.
  - 2. Symbolical.
- 7. The Papyrus Paper.
- 8. Egyptian Writing .....
  - 1. Hieroglyphical.
  - 2. Hieratic.
  - 3. Demotic.
- 9. Key to Egyptian Writing.
- 10. Arabic Numerals .....
  - 1. Origin.
  - 2. Why so named ?
- 11. English Language .....
  - 1. Origin.
  - 2. Periods.
  - 3. Composite
    - 1. Origin.
    - 2. Derivation.
  - 4. Alphabetic
- 12. Type Writing, Stenography, etc.
- 13. Exercises.

## CHAPTER I.

### HISTORY.

**Phœnicia.**—A tract of country, of which Tyre and Sidon were the principal cities, to the north of Palestine, along the coast of the Mediterranean Sea; bounded by that sea on the west, and by the mountain range of Lebanon on the east.

**Phœnicians.**—The name of the race who, in *earliest recorded* history, inhabited Phœnicia, and who were the great commercial people of the ancient world.

**The Phœnician Language** belonged to that family of languages which, by a name now generally adopted, is called “Shemitic” or “Semitic.” Under this name are included three distinct branches: 1st, *Arabic*, to which belongs *Æthiopian* as an offshoot of the southern Arabic or *Himyaritic*. 2nd, *Aramaic*, the vernacular language of Palestine at the time of Christ. 3rd, *Hebrew*, in which by far the greatest part of the Old Testament writings was composed. A very interesting point to remember is that

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**NOTE TO THE TEACHER.**—Although the History of Penmanship is very interesting and important, this chapter may be omitted until review, owing to the wants of the class.

Phœnician does not belong to either of the first two branches, but to the third or Hebrew. The fact is, it is so closely allied to Hebrew, that Phœnician and Hebrew, though different dialects, may practically be regarded as the same language.

Concerning the original race to which the Phœnicians belonged, nothing can be known with certainty because they are found already established along the Mediterranean Sea at the earliest dawn of authentic history. According to Herodotus they said of themselves in his time that they came in days of old from the shores of the Red Sea; and in this there would be nothing improbable as they spoke a language cognate to that of the Armenians who inhabited the east coast of that sea; and both Hebrew and Arabic, as well as Aramaic are seemingly derived from some one Semitic language now lost. Still, neither the truth nor the falsehood of the tradition can now be proved.

The most important intellectual invention of man, that of letters, was universally asserted by the Greeks and Romans to have been communicated by the Phœnicians to the Greeks, and the names of the Hebrew alphabet are in accordance with this belief. Moreover, as to writing, the ancient Hebrew letters substantially the same as Phœnician, agree closely with ancient Greek letters.

As to the mode in which letters were invented, some clew is afforded by some of the early Hebrew and the Phœnician characters, which evidently

aimed, although very rudely, to represent the *object* which the *name* of the letter signified.

THE PHœNICIAN ALPHABET consisted at first of only *sixteen* letters. Pliny tells us that Cadmus brought with him into Greece the *alphabet*, and founded the city of Thebes 1493 B. C. At the time of the Trojan War, Palamedes added four more letters and soon Simonides, of Melos, added four others, making in all twenty-four letters in the Phœnician alphabet. It is interesting to remember that Hiram, King of Tyre, one of the important cities of Phœnicia, was the friend of King Solomon and assisted him with men and timber to build the famous King Solomon's Temple. Not only did the Phœnicians make the most important intellectual invention ever made by man — that of letters — but they are also given the credit for having first invented weights and measures.

The oldest evidence on the subject of the HEBREW ALPHABET is derived from the Alphabetical psalms and poems — Psalms xxv., xxxiv., xxxvii., cxi., cxii., cxix.; Proverbs xxxi., 10-31; Lam. 1-4. From these we ascertain that the number of letters was twenty-two, the same number that the Hebrew alphabet of the present has.

THE ARABIC ALPHABET originally consisted of the same number as the Hebrew, namely, twenty-two letters.

THE OLDEST DOCUMENTS which contain the writings of a Semitic race are probably the bricks of Ninevah and Babylon on which are inscribed the cuneiform

Assyrian inscriptions. Herodotus, after telling us that the Ionians learnt the “art of writing” from the Phœnicians, adds that they called their books “skins,” because they made use of sheep-skins and goat-skins. Parchment was used for the manuscripts of the Pentateuch in the time of Josephus.

It was one of the provisions of the Talmud that the law should be written on the skins of clean animals, tame or wild.

The skins when written upon were formed into *rolls* upon one or two sticks and fastened with a thread, the ends of which were sealed. The rolls were generally written on one side only. They were divided into columns (leaves). The upper margin was to be not less than three fingers broad, the lower not less than four; and a space two fingers broad was to be left between every two columns.

Besides skins, which were used for the more permanent kinds of writing, tablets of wood covered with wax served for the ordinary purposes of life. Several of these were fastened together and formed *volumes*. They were written upon with a *pointed style*, sometimes of iron; for harder material a *graver* was employed. For skins or parchment a *reed* was used.

*The Ink* was to be of lamp black dissolved in gall-juice. It was carried in an ink stand which was suspended at the girdle as is done at the present day in the East.

**Chinese Writing** — It is nearly certain that writing was known among the Chinese as early as 2000 B. C. They have no alphabet but each word is represented upon the written page by a symbol or combination of symbols ; this requires that there be as many symbols or characters as there are words in the language. The number sanctioned by good use is about 25,000. A knowledge of 5,000 or 6,000 symbols enables one to read and write without difficulty. Many of the characters bear a remote resemblance to the objects for which they stand. This system, cumbrous and inconvenient as it is, is employed at the present time by one-third of the human race. They printed from movable types as early as the tenth or eleventh century, that is to say, about 400 years before the same art was invented in Europe.

### **The Egyptians —**

**The Papyrus Paper** — The chief writing material used by the Egyptians was the noted papyrus paper, manufactured from a reed which grew in the marshes and along the water channels of the Nile. From the Greek names of this Egyptian plant, *byblos* and *papyrus*, come our words “Bible” and “paper.” The plant has now entirely disappeared from Egypt, and is found only in parts of the island of Sicily and on a small stream near Jaffa, in Palestine. Long before the plant became extinct in Egypt an ancient prophecy declared, “The paper reeds by the brooks \* \* \* shall wither, be driven away, and be no more.” (Isa. xix-7.)

**The Egyptians** employed three forms of writing : (1) The **HIEROGLYPHICAL**, consisting of rude pictures of material objects usually employed in monumental inscriptions. (2) The **HIERATIC**, a simplified form of the hieroglyphical and formed the greater part of the papyrus manuscripts. (3) The **DEMOTIC** or **ENCORIAL**, a still simpler form which came into use about the seventh century B. C., was then used for all ordinary documents and could be written eight or ten times faster than the hieroglyphical form.

**The Key to Egyptian Writing** was discovered by means of the Rosetta Stone, a heavy block of black basalt, now in the British Museum. It holds an inscription written in hieroglyphic, in demotic and in Greek characters. Champollion, a French scholar, by comparing the characters in the words Ptolemy, Alexander, and other names in the parallel inscriptions, discovered the value of several of the symbols; and thus were opened the vast libraries of Egyptian learning.

**The Arabic Numerals** are so called because they were first introduced into Europe by the *Arabs*. They were not, however, invented by that people, but were derived by them from Hindostan. They were originally the initial letters of the *Sanskrit* names for the nine digits, *one, two, three*, etc., but have undergone considerable changes of form. The *Sanskrit* is the ancient language of the Hindoos.

**The English Language** is a composite language and is the descendant and representative of the

Anglo-Saxon. For five centuries after the Norman conquest it was in constant, and rapid process of change. It has never ceased to change, for then it would have ceased to be a *living language*. It has gone through the (1) Semi-Saxon Period (1150-1250), (2) Old English Period (1250-1350), (3) Middle English Period (1350-1550), into what is now the (4) Modern Period. Foreign words that come into our language do not stand by themselves as an independent class but are *Anglicized* — subjected to English laws and analogies, and *assimilated* chiefly in three ways: (1) By the foreign words being accented according to English analogy. (2) By declining the borrowed words according to English analogy. (3) By giving the borrowed words prefixes and suffixes. The French words engrafted on the native English stock are, with few exceptions, from the Latin, and when added to the almost equal number which have come directly from the Latin, they make *four-fifths* of all our borrowed words. The remainder of borrowed words scarcely exceed *one-twentieth* part of the entire vocabulary and are taken from a great variety of sources — the Hebrew, Arabic, Celtic, Dutch, Turkish, etc. It has lost many of the words (have become obsolete,) which belonged to the parent language — the Anglo-Saxon. On the other hand it has borrowed largely, almost to the extent of half its vocabulary, from other languages, especially the French and the Latin, and will continue to borrow.

The word “alphabet” is derived from the names of the first two letters of the Greek, viz: *Alpha* and *Beta*.

**The English Alphabet** consists of twenty-six letters which represent forty-two elementary sounds. To *write* our alphabet properly in “Standard” written language requires for the small letters 52 right and 35 left curves, 27 points, and 56 turns. For the capital letters, 32 right and 52 left curves, 16 points and 65 turns.

The style, the graver, the reed, the goose-quill have been supplemented by the beautiful and artistically constructed pens of various shapes and sizes, and the skins, and parchment rolls by the finest of writing paper.

**Type Writing** was first invented in 1714 A. D. by Henry Mill, of London. The first successful machine, however, was made by E. Remington in Ilion, N. Y., in 1874.

**Stenography** was first employed by Dr. Timothy Bright in England, in 1588. The first alphabetic system, however, was published in 1668 by John Willis, of England. Mr. Pitman’s system which has become so noted was invented in 1837. In forming his alphabet he has imitated the Hebrew more nearly than any other, so that in the latest and most improved form of written language we have a restor-

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**ORIGIN**—From the Phœnician the Greek; from the Greek the Latin, from the Latin, our own English Alphabet.

ation of the original characters to some extent, as taught to Moses on Mount Sinai. There are now (1898) about two hundred systems in use.

**The Telegraphic Alphabet**, composed of dashes, dots, and spaces, was invented by Prof. S. F. B. Morse in 1844.

The first steel pens were used in 1830.

The first envelopes in 1839. We may add that about the middle of the 16th century, vertical penmanship was discontinued for slant writing, but recently it has been revived, the basis of which is the old English round hand.

Among the first authors in America was John Jenkins who published a work in A. D. 1791. Then came Wriford, Hewitt, Jackson, and others. Rand, of Philadelphia, published a work in 1820. Root published a series of copy books, twelve books in a series in 1842. In 1851 Payson, Dunton, and Scribner's, and in 1855 Spencer's series was brought out. This brings us to many living authors of today.

#### EXERCISES.

##### TOPIC METHOD.

1. Write five lines taking for your subject "The Phœnicians."
2. Write fifteen lines on "The Phœnician Language."
3. Write ten lines on the "Invention of Letters."
4. Write five lines on the "Alphabet."
5. Write ten lines on "The Chinese Writing."

6. Write ten lines on "The Egyptian Writing."
7. Write five lines on "The Papyrus Paper."
8. Write ten lines on "The Key to Egyptian Writing."
9. Write twenty lines on "The English Language," giving its origin and composition.

QUESTION METHOD.

1. Who were the Phœnicians?
2. Where were they located?
3. Name three branches of the Semitic language and state which the Phœnician belongs to or is.
4. Distinguish between Arabic, Aramaic and Hebrew.
5. What can you say of the original race to which the Phœnicians belonged?
6. What seems to sustain the belief that they came from the Red Sea region?
7. What is the most important intellectual invention of man?
8. Who has the honor of the invention of letters?
9. Tell something of the mode in which letters were invented.
10. Who brought the alphabet into Greece?
11. Give the history of the number of letters of the Phœnician alphabet.
12. Who are given credit for the invention of weights and measures?

13. Where is the oldest evidence on the subject of the Hebrew alphabet?
14. How many letters has the Hebrew alphabet?
15. How many letters has the Arabic alphabet?
16. What are the oldest documents of the Semitic race, probably?
17. How were the ancient books made? What were they called? Why?
18. What kind of writing material was used for the MSS. of the Pentateuch in the time of Josephus?
19. What kind of skins was the law, according to the Talmud, written upon?
20. How were the skins cared for after being written upon? Describe these rolls.
21. Besides skins what else was used for ordinary purposes?
22. Name some of the instruments with which the Ancients wrote.
23. What was the earliest kind of ink used?
24. Why were the Arabic numerals so called?
25. From what source were the Arabic numerals derived?
26. What do you understand by the Sanskrit?
27. What is language?
28. Whence has the English language descended?
29. Is the English language always changing?
30. How do foreign words get into the English language? How assimilated?
31. What proportion of borrowed words from the Latin? From what other source come borrowed words?

32. What proportion of words is borrowed from the French and Latin?
33. Give the origin of our own English alphabet. Give derivation of the word "alphabet."
34. Of what does the English alphabet consist?
35. By whom were *italics* invented? When?
36. When were steel pens first used? Envelopes?
37. When was typewriting invented?
38. When was stenography first employed?
39. When was telegraphy first invented?
40. When was vertical penmanship first discontinued for slant? When revived?
41. What is our recent vertical penmanship derived from?
42. How old is Chinese writing?
43. Have the Chinese an alphabet?
44. What part of the human race use the Chinese language.
45. Describe their method of writing.
46. Give the history of the Papyrus paper.
47. How many forms of writing did the Egyptians use? Describe them.
48. How and by whom was the key to Egyptian writing discovered?
49. Of what benefit was this discovery.
50. Name some early American authors in penmanship.

## CHAPTER II.

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### POSITION.

#### 1. Definition.

2. The Body.....  
1. Front Position { 1. Standard Slant  
2. Right Position.  
3. Exercises.

3. The Fingers.....  
1. Pen-prehension.  
2. Poising.  
3. Exercises.

4. The Arms.....  
1. Right.  
2. Left.

#### 5. Feet and Limbs.

#### 6. Exercises.

7. The Eye.....  
1. Position of the Eye.  
2. Vision.  
3. Refraction.  
4. Accommodation.  
5. Emmetropia.  
6. Ametropia.  
7. Myopia.  
8. Hypermetropia.  
9. Presbyopia.  
10. Asthenopia.  
11. Phosphenes.  
12. Astigmatism.  
13. Binocular.  
14. Color Blindness.  
15. Suggestions.

1. Formed According to	<p>1. Age. 2. Sex. 3. Habits. 4. Temperament. 5. Development.</p>
2. Must Insure	<p>1. Proper Light. 2. Proper Temperature. 3. Proper Space. 4. Ease of Body.</p>
3. Exercises	<p>1. Review. 2. The Books. 3. The Pens. 4. The Pen-Wipers. 5. The Blotters. 6. The Distribution of Copy Books. 7. Practice Paper. 8. Blackboard. 9. Close.</p>
<b>8. The Class Position</b>	
<b>9. Question Method.</b>	
<b>10. Topic Method.</b>	
<b>11. Assigning Lessons.</b>	
<b>12. Cautions.</b>	
<b>13. Results of Improper Positions.</b>	
<b>14. Review Questions.</b>	

## CHAPTER II.

### POSITION.

**Position** is the situation or disposition of the parts of the body with respect to a particular purpose.

A position to be correct must have for its object correct power to execute with a free, uniform movement.

**Position must insure**, 1. Ample light from the left. 2. Ample space. 3. Proper temperature. 4. Ease of the entire body.

**Positions differ** owing to the style of hand, whether slant or vertical, etc., and because of the style and slant of the desk.

#### CLASSIFICATION OF POSITIONS.

I. POSITION OF THE BODY. II. POSITION OF THE FINGERS. III. POSITION OF THE ARMS. IV. POSITION OF THE FEET AND LOWER LIMBS. V. POSITION OF THE EYE. VI. THE CLASS POSITION.

#### I. POSITION OF THE BODY.

##### THE FRONT POSITION.

**I. For Slant Writing**—The body supporting itself fronts the desk or page to be written upon.

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**To THE TEACHER.**—The object sought in the position for vertical writing is a free, easy, rolling movement.

As the body inclines forward let the bending be at the hips. The body must not touch the desk and both shoulders must be of the same height with the arms resting upon the desk nearly up to the elbows. The straight downward stroke may and does vary from five to twenty-seven degrees. That is, by comparing the writings of leading penmen it is found that the slant varies, at present, from sixty to thirty-seven degrees.

**2. For Vertical Writing** — The body supports itself, fronts the page to be written upon, inclines forward with shoulders normal and either with the arms resting upon the desk nearly up to the elbows with the right elbow moved away from the body until the strokes are perpendicular when the desks are flat, or with the right arm suspended easily at the side resting lightly on the forearm just above the wrist where the desks are sloping.

**The Right Position** is the body turned half way round to the left, the right side coming next the desk.

**The Right Oblique Position** is the body turned midway between the front and right.

**The Front Position** is the hygienic position, because the body is self-supporting, the respiration and circulation are unimpeded, the shoulders are normal, the arms and hands are free and the body is in harmony. Therefore, all other positions of the body may well be dispensed with.

## EXERCISES TO SECURE CORRECT POSITION OF THE BODY.

1. Sit upright.
2. Throw back the shoulders.
3. Force all the air possible into the lungs—  
[complemental air plus the tidal air.]
4. Force all the air possible out of the lungs—(re-serve air plus the tidal air.)
5. Breathe normal—(tidal air.)
6. Raise and lower the shoulders.
7. Swing the weight of the arms from the shoulders.
8. Suspend elbows easily at the side of the body.
9. Place the arms on the desk.
10. Incline forward without bending the vertebral column.

## II. POSITION OF THE FINGERS.

The third and fourth fingers should be partially flexed to form the "hand rest." The inner portion of the thumb should be opposite the first articulation of the index finger as the latter rests on the pen-holder. The second finger should partially support the holder at the root of the nail. The hand must be in pronation, and all joints of the fingers and thumb bend forwards.

**Pen-prehension** is the act of taking hold of the pen preparatory to writing.

**Poising** is the manner of holding the pen and consists in placing the muscles of the hand, forearm and arm in equi-ponderance or easy balance.

**The First and Second Fingers** should extend out nearly their full length in pen-prehension and poising.

**Both Points of the Pen** must be placed equally on the paper by the proper degree of pronation without moving the fingers.

**The Sliding Rest** is the hand rest in motion. And a correct position of the fingers or hand must insure a sweep of the pen's point across the page without supination.

**The Arch of the Arm** is understood to mean from the sliding rest to the arm rest below the elbow.

**The Hands** are usually situated from four to six inches apart, upon the desk, when writing.

#### EXERCISES TO SECURE CORRECT PEN-PREHENSION.

1. Hold up the right hand with palm outward.
2. Begin at the index finger and count "1, 2, 3, 4."
3. Separate 3 and 4 from 1 and 2.
4. Drop 3 and 4 into the palm.
5. Place the thumb against the last joint of the index finger.
6. Flex and extend the thumb and first and second fingers — practice.
7. Proper pen-prehension ; write.

## III. POSITION OF THE ARMS.

They should be placed upon the desk nearly up to the elbows.

The business of the left arm is to adjust the page to be written upon to accommodate pen-prehension, poising, and the style or manner of execution.

**The Right Arm**—The position of the right arm is this—swinging from the shoulder, flexed at the elbow, with the forearm in pronation, and at right angles to the line, real or imaginary, to be written upon, and resting either upon the hand rest, and arm rest, either or neither.

The chief end aimed at in pen-prehension and poising of the hand and arm is to secure correct power to execute with uniformity of movement. [Explained in the chapter on "Movement."]

**In Vertical Writing** the elbow is moved to the right, or farther away from the body, or the elbow may swing from the shoulder and only the hand and a portion of the forearm permitted to rest upon the desk—owing to the degree of slant presented by the surface of the desk.

## IV. POSITION OF THE FEET AND LOWER LIMBS.

The feet should rest comfortably on the floor. No pressure should be made on the sciatic nerves sufficient to cause the limbs "to go to sleep."

As different persons vary as to size, and as the same person differs at different times in life, it follows that the seats and writing desks should be carefully selected to suit those who are to make use of them.

#### EXERCISES TO SECURE CORRECT POISING.

1. Sit squarely fronting the desk.
2. Lean forward, bending at the hips.
3. Place the arms on the desk, [owing to the style of hand contemplated,] nearly up to the elbows or swinging from the shoulder.
4. Assume prehension and poise.
5. Use the progressive movement which is sweeping the arm from left to right.
6. Use the projective movement which is projecting the hand or arm upward and downward.
7. Take up the "sliding" rest, repeat as in 5 and 6.
8. Take up both rests and repeat.
9. Throw back the shoulders, expand the chest, etc.
10. Place all muscles of the hand, arm and body in easy balance.

#### V. POSITION OF THE EYE.

Fifty per cent and over of all school children have imperfect eye-sight.

**The Position of the Eye** should be from twelve to fifteen inches from the paper or manuscript with its center of motion nearly opposite the middle of

the page. [Focal adjustment should receive first and continued attention.]

**Vision**—The light passes through the cornea, aqueous humor, lens and vitreous humor and is focused upon the retina, which impressions are conveyed to the brain by the optic nerves, and thence results the sensation which is called *vision*. The amount of light admitted is regulated by the reflex movements of the iris—the pupil contracting in a bright light and dilating in a feeble light. Contraction of the pupil is called *myosis*. Expansion of the pupil is called *mydriasis*.

**The Field of Vision** is the area bounded by the most eccentric points which can be perceived while the line of vision (visual line) remains fixed upon a central point. It comprises all the parts seen indirectly around a central object seen directly.

**Refraction** is that faculty of the eye by which parallel rays are brought to a focus upon the retina without any effort of accommodation, and depends upon the form of the globe and its refractive media.

**Accommodation** is the power of the eye to adjust itself for vision at different distances.

**Sight and Touch** are the two main mediums through which a knowledge of penmanship is acquired.

**Emmetropia**—The state of refraction where parallel rays are brought to a focus upon the retina when

the eye is at rest. The emmetropic eye is a perfect eye.

**Ametropia**—This is a name given to all refractive conditions which deviate from emmetropia.

**Myopia**—(Hypometropia, Brachymetropia and “Long Eye,”) is where the parallel rays are focused *in front* of the retina and the divergent rays upon the retina. The optic axis is too long. This condition is corrected by CONCAVE GLASSES which should enable the writer to work at twelve to fifteen inches. They render parallel rays divergent enough to be united on the retina.

**Hypermetropia** (“Far Sight,” “Flat Eye,”) is where the parallel rays are focused *behind* the retina. The optic axis is too short. This condition of refraction is corrected by CONVEX GLASSES.

**Presbyopia**, (Far Sight, “Old Man’s Eye,”) is a recession of the near point, beginning in youth and gradually increasing to old age, but is *assumed* to begin when the near point has reached beyond eight or ten inches; easily corrected by CONVEX GLASSES.

**Asthenopia**, (“Weak Sight.”)—After writing or reading for any length of time the letters become blurred and run into one another, eyes grow red, watery, hot, painful or fatigued. These symptoms vanish when work is laid aside.

**Phosphenes or Photopsia**, is where flashes of light, sparks, luminous rings, etc., are seen before the eyes, and are often symptoms of approaching headache. Work should be laid aside.

**Astigmatism**, is where the refraction differs in different meridians owing to the want of symmetry in the refracting surfaces. The rays from a point are not reunited in a point when the eye is at rest. This condition of refraction is corrected by CYLINDRICAL GLASSES which act like corresponding spherical glasses in one meridian and like plane glasses in the meridian at right angles to this.

**Blind Spots**—Indistinct areas in the field of vision or where it disappears from view altogether, and shows that the nerve centers are at fault.

**Micropsia** is where the letters or objects appear smaller than they really are and is a result of disturbance in the rods and cones of the retina.

**Diplopia** (Double Vision)—is when the images are formed on different parts of the two retinæ at the same time. Both visual lines are not fixed upon the same object. [See "Review Questions" for fuller discussion.]

**Binocular Vision**—It is important to the writer to know whether this exists. A simple test is to hold a pencil midway between the eye and print while reading. The pencil will not interfere with any part of the page if there is binocular vision;

but if only *one* eye is used, the pencil will obscure the view in proportion to its size.

**Visual Angle** — is the angle enclosed between two lines drawn from the extremities of the object to the optical center of the eye.

**Color Blindness or Daltonism** is the inability to distinguish colors. The Holmgren Test or "Worsted Test" shows one out of every fifty partially or wholly unfitted for service requiring accuracy in the perception of colors.

The person being examined by the "Worsted Test," instead of naming colors selects from samples placing each in its appropriate bunch.

## VI. THE CLASS POSITION.

**The Class Position** should be uniform and suited to the convenience of teaching and class-work. It should be suited to the desks and to the way the light comes into the room. Near-sighted pupils ought to be in front near the black-board.

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**TO THE TEACHER.** — If these considerations of the abnormal conditions of the eye seem too abstruse for the pupil, they may be omitted until review. However, the care of the eye and its importance in penmanship and all other relations of life cannot be overestimated. The teacher or pupil should be quick to detect any abnormal conditions such as conjunctivitis, iritis, ulceration of the cornea, etc., and to have the same properly looked after and treated by a competent oculist or physician.

Classes should be formed according to, (1) age, (2) sex, (3) habits, (4) temperament, and (5) development.

The class position should always insure to each pupil of the class plenty of light, proper degree of temperature, ample space, and ease of the whole body. [Cuffs, rings, bracelets, etc., should be removed.]

#### SYSTEM IN CLASS WORK.

Order, which is the key to happiness and progress in the school room, is gained by system. Every detail must be brought under the dominion of system, whatever class exercises may be adopted.

#### CLASS EXERCISES.

1. Review the preceding lesson.
2. *The Books.*—There should be two shelves in front of the teacher's desk on the side next the pupils. Place the boys' books on the upper, and the girls' books on the lower shelf. Have pupils classified as heretofore indicated, or an equal number of rows of seats for boys and the same for girls.
3. *The Pens.*—All the pens should be gathered on Friday night and put in a small box [cigar box,] or one for the boys' and also for the girls' pens. On Monday morning pull all the old pens out with a small pair of pliers and insert new ones. Put the old pens in a box to be got by the pupils any time. [Buy pens by the gross.]

4. *Pen Wipers.*—If nothing fancier, a piece of old muslin will do to cut up for pen wipers.

5. *Blotters.*—Purchase blotting paper by the dozen sheets and cut it up in sizes to suit.

6. *Distribution of Copy Books.*—The books being on the shelves, signal *one* will bring all into “first position”—sitting erect. Number *two* will bring to their feet the pupils of the rear row of desks, who will move with the “leader” [the one at the extreme left] towards the teacher’s desk; then each will take his books in his left hand and face about ready for distribution. [By watching the “leader” they distribute in unison.] Number *three*, each pupil opens his book and takes his pen. Number *four*, each will hold his pen in a correct position. [Go over pen-prehension and poising.] Number *five*, each may begin writing on his “practice sheet.” [This will be varied owing to the work and advancement of the pupil.]

7. *Practice Paper.*—Buy, and give each pupil ten or fifteen sheets of foolscap. If writing books are used, halve the sheets so they will fit in the writing book.

8. *Black-board Work.*—Take up the copy, a word at a time, write it out and give instruction. [Vary, by allowing the pupils to use the board occasionally.]

9. *The Close.*—After from twenty to thirty-five minutes have passed, give the next signal, *six*. All stop, wipe pens, use blotter, close books, sit in

position. [If any do not, a tap with the pencil on the desk will answer.]

Number *seven* will bring up the rear pupils, the books will be gathered and placed on the shelves.

Let everything be brought under the dominion of system, and in the place of confusion and idleness there will be progress and happiness even in an exercise covering so much detail as a recitation in penmanship.

**The Question Method.**—Give a list of ten questions one day to be answered the next.

**The Topic Method.**—Give a topic one day to be written upon and returned the next. Then mark thereon all criticisms owing to the pupil's advancement.

**Assigning Lessons.**—Assign a lesson—usually short—each day the same as you would in any other branch. Make a business of it as in orthography, geography, grammar, etc. [Read "Suggestions" following the preface in this book.]

Letter writing, themes, etc., will receive attention in the chapter on "letter writing."

#### CAUTIONS.

1. Avoid light that dazzles the eye. The position should secure plenty of light without dazzling.
2. Avoid a position facing a bright light or a window.

The light should come from the side, preferably the left side and somewhat over the shoulder.

3. Avoid using the eye too close to the paper.

The position of the eye should be about fifteen inches from the paper. If there be any errors of refraction have it corrected by proper lenses.

4. Avoid writing or reading after recent illness, or by twilight, or when the paper is bad as to quality or color.

5. Avoid bending the spine or bending the head over the paper.

6. Avoid anything tight about the neck.

7. Avoid cold feet or hands. The room should be comfortable when the thermometer [there should be one in every school room] shows sixty to seventy-five degrees Fahrenheit.

#### RESULTS OF IMPROPER POSITIONS.

Curvature of the spine from habitually taking a position that raises one shoulder above the line of the other. Drooping shoulders from a hunching of the shoulders or settling forwards too far. Hollow Breast or Pigeon's Breast may result from writing day after day at a table or desk too low and flat, and the vital capacity of the lungs may be greatly impaired. Myopia and the various defects of vision may result from oblique positions or from a position facing the light of a lamp or window, in close application. Writer's Cramp may be hastened by improper position. Neuralgia or sciatica, rheumatism, weak lungs, in fact a long list of diseases, may result from improper position as to hygienic surround-

ings. Carelessness in position will lead to irregularities and even deformities not only in muscle and bone, but an abnormal tonicity of the nerves may result which forebodes disaster to the harmony of thought and action. Focal adjustment should receive first attention, it should be continued throughout, and all diseases of the eye should be quickly detected and corrected.

#### REVIEW QUESTIONS.

1. Define position.
2. What is the object of a correct position?
3. What must position insure?
4. Why do positions differ?
5. Give the classification of positions.
6. What is the front position (1) for slant, (2) for vertical hand?
7. What is the main object sought in the position for vertical hand?
8. What is meant by (1) the right, (2) right oblique position?
9. Which is the hygienic position? Give reasons.
10. How would you secure correct position of the body?
11. Why expand the chest by deep inspiration and expiration? The mechanism of breathing is such that 600,000,000 air cells must be kept elastic so that the blood may be purified by the imbibition of oxygen and exhalation of carbonic acid by osmosis which ultimately insures nervous energy

and motion, besides insuring against any deformity of the chest walls or shoulders.

12. Give the position of the fingers.
13. What is understood by pen-prehension?
14. What is poising?
15. What is the attitude of the first and second fingers in pen-prehension and poising?
16. How are both points of the pen to be placed equally on the paper?
17. What is the sliding rest?
18. What must a correct position of the fingers and hand insure?
19. What is the "arch of the arm?"
20. How are the hands situated with reference to each other?
21. How would you secure correct pen-prehension? Give exercises.
22. Give the position of the arms.
23. What is the main business of the left arm?
24. Give the position of the right arm.
25. What is the chief end aimed at in pen-prehension and poising?
26. In assuming the position for vertical penmanship, what deviation would be made from that of standard slant? Why?
27. Discuss the position of the feet and lower limbs.
28. What should determine the selection of writing desks for pupils.
29. How would you secure correct poising?

30. What per cent of school children have imperfect eyesight?
31. Give the position of the eye.
32. What is understood by vision?
33. How is the amount of light admitted into the eye regulated?
34. Explain the terms myosis and mydriasis.
35. What is meant by the field of vision?
36. What is refraction?
37. What is accommodation?
38. What medium is first in importance through which a knowledge of penmanship is acquired?

*Ans.* Sight.

39. What medium stands second? *Ans.* Touch.
40. Define Emmetropia.
41. Define Ametropia.
42. Define Myopia. Give synonyms.
43. What kind of glasses correct Myopia?
44. Define Hypermetropia. Give synonyms.
45. What kind of glasses correct Hypermetropia?
46. What is Presbyopia? Give synonyms.
47. What kind of glasses correct Presbyopia?
48. What is Asthenopia? Photopsia?
49. When these occur what should be done? *Ans.*

Rest or change to different work for awhile.

50. What is meant by Astigmatism?
51. By what kind of glasses is Astigmatism corrected?
52. What are blind spots? Micropsia?

53. When blind spots and Micropsia occur what is indicated?

Disturbance of the nerves and if work is forced upon the pupil there will result severe headache and nervous irritability. The chief remedy is recreation by change of work, or rest.

54. What is Diplopia?

55. What causes Diplopia? *Ans.* Some derangement in the visual axes so that the images are not impressed on corresponding parts of the retina of each eye. It is a very grave symptom under certain circumstances and in certain diseases.

56. What is binocular vision?

57. Give a simple test for binocular vision.

58. What is meant by the visual angle?

59. What is Daltonism or color blindness?

60. What per cent are color blind?

61. Give the Holmgren Test.

62. What conditions should govern the class position?

63. How should classes be formed?

64. What should the class position always insure to each pupil?

65. State how you would conduct a recitation in penmanship?

66. What is the Question method?

67. What is the Topic method?

68. Repeat the cautions.

69. What should be the temperature in which to secure good work?

70. Name and discuss some results of improper positions, carelessness, etc.

## CHAPTER III.

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### ANALYSIS AND SYNTHESIS.

- 1. Definitions.
- 2. Principles.... 1. Lower Case.... { 1. Primary.  
2. Secondary.
- 3. Principles of Form.
- 4. Analytical Tables..... 1. Lower Case.  
2. Capitals.
- 5. Exercises.
- 6. Classification of Letters.
- 7. Order of Analysis.
- 8. Models for Analysis,
- 9. Exercises.
- 10. View of Critical Analysis.
- 11. Vertical Penmanship ..... 1. Properties of Letters.  
2. Analysis, etc.  
3. Comparisons.  
4. { Conditions.  
Effecting Work.
- 12. Exercises.
- 13. Review Questions.

## CHAPTER III.

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### ANALYSIS AND SYNTHESIS.

**Penmanship** is both a science and an art: As a science it investigates the principles of written language in general; as an art it teaches how to apply those principles to a correct record of thought, by means of forms, letters and words.

**Analysis** is the separation of a letter, form or combination into its elements.

**Critical Analysis** comprehends the relation any part bears to the entire field of penmanship. To know how any object of thought differs from all other things and how it resembles them is, to know all about it. It consists then, (1) in pointing out principles and elements and the relation they bear to each other in letters, words, sentences and parts of sentences. (2) In pointing out resemblances and differences as compared with each other, the lines of Position and Arrangement; regularity, uniformity and conformity to the usages of the best authors.

**Synthesis** is the construction of letters, forms and combinations from principles and elements.

**The Alphabet** is the letters of a language.

**The Invention of Letters** is the foundation of all written language.

**Written Language** is the expression of thought by means of written or printed characters.

**Language**, in general, is any method of communicating thought or feeling.

**A Letter** is a character used to represent one or more elementary sounds.

**An Element** is one of the visible parts of a letter, form or combination.

**The Name** of a letter, form or combination is the term by which it is known.

**The Properties** of a letter, form or combination is whatever belongs to it.

**Letters are Combined** by combining elements—that is by movements from left to right without raising the pen.

**A Principle** is one of the essential parts of a letter, form or combination.

**The Line of Arrangement** is the base line, real or imaginary, on which the shortest letters rest. It is commonly ruled upon paper in its manufacture.

**Alignment** is placing letters, forms or combinations in line with each other.

**The Line of Position** is either vertical or inclined toward the line of arrangement.

**The Head Line** is the line, real or imaginary, to which the shortest letters extend.

**The Form or Figure** of a line depends upon the relative position of dots or points in that line.

**A Line** may be conceived as generated by a dot or point in motion.

**A Curved Line** changes its direction at every point.

**A Broken Line** is a series of connected straight lines.

**Initial Curves** begin, and *Final Curves* end letters, words, and forms.

**Written Articulation** is the blending of lines so as to join letters.

**A Horizontal Right Curve** is one extending in a horizontal direction with its concavity upwards.

**A Horizontal Left Curve** is one extending in a horizontal direction with its concavity downwards.

**A Character** is a distinctive mark or sign.

**An Angle** is the difference in direction of two straight lines, and its *magnitude* is the extent of opening of its sides.

**A Point** is the angular joining of two straight lines.

**Standard Slant** is the distance from the lower left-hand corner to the opposite upper corner of a rectangular form 3 wide by 4 high. The *angle* of *straight lines* or *strokes*, varies from 52 to 37 degrees from the perpendicular, owing to the style of hand.

**The Standard Angle** of the *Curves* is 30 deg. This is also termed *Connective Slant*.

The difference between the slant of straight lines and curves is 23 deg. This is the *Angle of Legibility*.

**The Slant of Curves** is measured by a straight line, real or imaginary, passing through the longest direction.

**The Law of Combinations**, also called the "Law of Relations," is the changes, unrelated parts, or principles assumed in the formation of combinations.

**In Vertical Penmanship** the angle of the strokes is 0 degrees, while the angle of legibility and of curves is 45 degrees.

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**To THE TEACHER.** — By way of illustration, many definitions may be turned to better account in forming proper concepts. Be guided in this by the pupil's aptness to discern.

## PRINCIPLES OF PENMANSHIP.

## CLASSIFICATION.

- I. Primary Principles of Lower Case Letters.
- II. Secondary Principles of Lower Case Letters.
- III. Primary Principles of Capital Letters.
- IV. Secondary Principles of Capital Letters.

**I. PRIMARY PRINCIPLES OF LOWER CASE LETTERS.**

There are four primary, also called Elementary principles.

1. The Dot or point.....
2. The Straight Line .....
3. The Right Curve.....
4. The Left Curve.....

**The Dot** is a mark having position without extension.

It is the touch of the pen's point.

A line may be conceived as generated by a point or dot in motion.

## USES OF THE DOT.

1. To indicate the completeness in the formation of i and j.
2. To indicate completeness at the end of a word or sentence.

3. To indicate abbreviations, but not taking, in this situation, the place of other points.
4. To separate dollars and cents.
5. To be placed before decimals.
6. To assist in forming various punctuation marks.

**The Straight Line**, is one that does not bend, but has the same direction throughout its length. It is a continuation of the touch of the pen's point, generated by a dot in motion.

#### USES OF THE STRAIGHT LINE.

1. To give extension or length.
2. To govern slant.
3. To govern arrangement.
4. To preserve regularity and order.
5. To give precision.
6. To express meaning always in relation with letters and forms.
7. To indicate the size of letters by being placed under them.
8. To form parallels, etc., in punctuation marks.
9. To make up the framework of letters and forms.
10. To write the parts of a compound word (Hyphen), etc.

**The Right Curve** is the right side, or part thereof, of an oval.

It is a continuation of the touch of the pen's point.

## USES OF THE RIGHT CURVE.

1. To show extension in an opposite direction to the left curve.
2. To vary direction at every point showing any curvature.
3. To unite the framework of letters and forms.
4. To express fulness of form and appearance.
5. To insure forward and return movement.
6. To connect body elements.
7. To aid in forming "curves," breve, macron, etc., in punctuation marks.

**The Left Curve** is the left side or part thereof, of an oval. It is a continuation of the touch of the pen's point.

## USES OF THE LEFT CURVE.

1. To show extension in an opposite direction to the right curve.
2. To vary direction at every point showing curvature.
3. To unite the framework of letters and forms.
4. To express fulness of form and appearance.
5. To insure return and forward movement.
6. To connect body elements.
7. To aid in forming punctuation marks.

USES OF THE FIRST, OR PRIMARY PRINCIPLES AS SEEN  
IN WORDS.

1. To insure extension as to height and width.
2. To accomplish complete written articulation.

3. To give continuity, legibility, fulness and beauty.
4. To give precision in *parallelism*.
5. To insure regularity and precision in *form*.
6. To give ornamentation and punctuation.
7. To form the basis of every variety of form in penmanship, punctuation and drawing.

## II. SECONDARY PRINCIPLES OF LOWER CASE LETTERS.

The following are the Secondary or Basic Parts of the small letters, called Secondary Principles, or "Combined" Principles:

1. The Oval.
2. The Pointed Oval.
3. The Hook—Standard and extended.
4. The Inverted Hook.
5. The Double Hook.
6. The Upper Loop.
7. The Lower Loop.
8. The Fold.
9. The Point.
10. The Compound Curve.
11. The Turn.

**The Oval** is a figure representing very nearly the outline of an egg, and is the best example of an *irregular* curved form.

**The Circle** would be a *regular* curved form.

**The Pointed Oval** is the "a" oval and is sometimes called the "modified pointed oval," really meaning that it is small a, minus the hook.

**The Hook** is a combined straight line and curve. The standard hook is one space in height.

The extended hook extends one space above the head line.

The hook is also called the "direct semi-angle."

**The Inverted Hook** is one which assumes contrary relations to the head and base line.

It is also called the "inverse semi-angle."

**The Double Hook** is the union of two hooks, one of which is inverted.

It is frequently referred to as the "combined semi-angle."

**A Modified Hook** is one in which the *extent of opening* of its sides is changed, and may be either single or double.

**The Upper Loop** is a small space enclosed by lines crossing themselves *above* the base line.

**The Lower Loop** is a small space enclosed by lines crossing themselves *at* the base line, the loop being below it.

**The Fold** is a space almost, or entirely, enclosed, but instead of the lines crossing as in loops, they run parallel. In f both loop and fold enclose spaces, and in q they run parallel.

**The Point** is the limit of the angular joining of two lines. The angle is usually acute.

**The Turn** is the merging of one line into another changing its direction at every point without stopping motion.

**The Compound Curve** is one formed by continuous right and left curves, the direction being changed at every point. The simple curves or primary principles which make up a compound curve are either convex or concave; convex arch over and concave bend under a horizontal line. This gives rise to two classes of compound curves as follows: If the curve beginning the compound is convex, it is termed *convexo-concave*, but if the beginning curve is concave, it is termed *concavo-convex*.

**NOTE:** For the analogies of small letters see chapter on Execution.

PRIMARY PRINCIPLES OF FORM OR DRAWING  
IDENTICAL WITH LETTERS.

The Primary or Elementary Principles of *form* are, (1) the dot, (2) the straight line, (3) the right curve, (4) the left curve.

These principles are the foundation of any form the mind can conceive.

**Form** in penmanship is the boundary of space.

**Angular Forms** are produced by uniting straight lines. A *square* is the best example of a regular angular form.

**Curved Forms** are produced by uniting curved lines. The *circle* is the best example of a regular curved form.

**Mixed Forms** are produced by uniting straight and curved lines. The oval is the best example of an irregular *curved* form, and the “a oval” of a *mixed* form. A series of *dots* is often used to show continuation of forms without extending *lines*.

**III. PRIMARY PRINCIPLES OF CAPITAL LETTERS** are the same as in lower case letters. The uses of the dot and straight line are restricted so that in Standard capitals the lines are all curves.

In Current capitals where lower case letters are simply increased to the size of capitals, the straight line is preserved as in A, G, X, etc.

The chief characteristics of the use of capital curves are, (1) that they are free from sudden turns, (2) that they are always parallel if running in the same direction, (3) that they are uniform.

Owing to the Rules for Capital Letters they are executed singly in rectangular proportion of three wide to four high.

The Analogues are sometimes spoken of as the primary principles of capitals. This should be corrected since the elementary principles—dot, straight line, right and left curves are capable of producing any form that man can conceive of. (For Analogues—Chap. V.)

**IV. SECONDARY PRINCIPLES — CAPITAL LETTERS.**

NOTE—Refer to Chapters V. and VI. for Capitals in Script.

The Secondary or Combined Principles of Capitals are as follows:

1. The inverse oval in U, V, W, X, Y, Z, and Q.
2. The direct oval in C, D, E, and O.
3. The Stem Oval in P, B, and R.
4. The Looped Stem in S, L, Y, Z, I, and J.
5. The Central Connecting Loop or Tie in B, R, K, E, and Z.
6. The Cap over T and F.
7. The Capital Stem is very flexible and varies greatly in different letters, towit: N, M, A, T, F, P, B, R, S, L, G, H, I, J, K.

#### ANALYTICAL TABLES

of lower case and capitals, showing curves, lines, loops, folds, points, turns, ties, hooks, ovals, crossing marks, dots, slant, length and shade.

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**TO THE TEACHER.** — It will be found an excellent means of acquainting the pupil with correct forms and good ideals of letters to have him construct tables similar to the following of all the letters of any “system” in use in the schools.

For varieties in letters, see chapter on “Practice.”

## Analysis and Synthesis of Small Letters.

Names	Curves		Straight Lines		Loops		Hooks		Ovals															
	Right	Left	Compound	Horizontal	On reg. slant	Connec. slant	Modified	Unmodified	Inverted	Single	Double	Inverted	Modified	Extended	Pointed	Complete	Fold	Points	Turns	Ties	Cross' marks	Dots	Folded stem	Length
<i>a</i>	2	2	—	—	1	—	—	—	—	1	—	—	1	1	—	—	—	1	2	—	—	—	—	1
<i>b</i>	2	1	—	1	1	—	—	—	—	1	—	—	1	1	—	—	—	—	2	—	—	1	—	3
<i>c</i>	3	1	—	—	1	—	1	—	—	—	—	—	1	1	—	—	—	1	3	—	—	—	—	1
<i>d</i>	2	2	—	—	1	—	—	—	—	—	—	—	1	1	1	—	—	2	2	—	—	—	—	2
<i>e</i>	2	1	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	2	—	—	—	—	1
<i>f</i>	3	2	—	1	1	—	1	—	1	—	—	—	—	—	—	—	1	1	2	—	—	1	5	
<i>g</i>	2	3	—	—	1	—	—	1	—	—	—	—	—	1	1	—	—	2	2	—	—	—	—	3
<i>h</i>	2	2	—	—	1	—	1	—	—	1	—	—	—	—	—	—	—	1	3	—	—	—	—	3
<i>i</i>	2	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	1	1	—	—	1	—	1
<i>k</i>	2	1	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	1	1	—	—	1	—	3
<i>l</i>	3	2	—	—	2	—	1	—	—	1	—	—	1	—	—	—	—	1	3	1	—	—	—	2
<i>m</i>	2	1	—	—	1	—	—	1	—	—	1	—	—	1	—	—	—	—	2	—	—	—	—	3
<i>n</i>	1	3	—	—	3	—	—	—	—	—	1	2	—	—	—	—	—	2	4	—	—	—	—	1
<i>o</i>	1	2	—	—	2	—	—	—	—	—	1	1	—	—	—	—	—	1	3	—	—	—	—	1
<i>p</i>	1	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—	—	—	1	
<i>q</i>	3	—	1	1	1	—	—	—	—	—	—	—	1	—	—	1	2	3	—	—	1	4	—	
<i>r</i>	1	3	1	—	1	—	—	—	—	—	—	—	1	1	—	1	2	2	—	—	1	2	—	
<i>s</i>	2	—	1	—	1	—	—	—	1	—	—	—	—	—	—	—	—	2	—	—	—	—	1	
<i>t</i>	2	—	1	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	2	2	—	—	—	1
<i>u</i>	2	—	1	—	1	—	—	—	1	—	—	—	—	—	—	—	—	1	1	—	1	—	2½	
<i>v</i>	3	—	—	—	2	—	—	—	2	—	—	—	—	—	—	—	—	2	2	—	—	—	—	1¼
<i>w</i>	1	1	—	1	1	—	—	—	—	1	—	2	—	—	—	—	—	2	—	—	1	—	1¼	
<i>x</i>	3	—	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	2	2	—	—	1	—	1
<i>y</i>	1	1	—	—	1	1	—	—	—	1	—	—	—	—	—	—	—	2	—	1	—	—	1	
<i>z</i>	2	2	—	—	2	—	—	—	1	—	1	—	—	—	—	—	—	1	3	—	—	—	—	3
Totals	52	35	4	7	29	1	6	1	5	8	6	4	5	2	7	4	1	3	27	56	2	2	5	3

## Analysis and Synthesis of the Capital Letters.

Name	Curves				Straight Lines				Loops				Ovals				Folds				Stems			
	Right	Left	Compound	Horizontal	Reg.	Slant	Modified	Inverted	Extended	Extended Hook	Incomplete	Modified	Stem	Unmodified	Modified	Unmodified	Points	Turns	Caps	Ties	Cross' marks	Length		
<i>A</i>	1	3	1	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	2	..	1	3		
<i>B</i>	2	2	1	..	..	1	..	..	..	..	1	1	..	..	1	..	..	4	..	1	..	3		
<i>C</i>	2	2	..	..	..	1	..	..	..	..	1	1	..	..	..	..	..	3	..	..	..	3		
<i>D</i>	1	2	2	..	..	1	..	..	..	..	1	1	..	..	1	..	..	3	..	..	..	3		
<i>E</i>	2	4	..	..	..	1	..	..	..	..	1	1	..	..	..	..	..	5	..	1	..	3		
<i>F</i>	..	1	2	2	2	..	..	..	..	..	1	1	..	..	1	..	2	1	1	..	1	3		
<i>G</i>	2	3	..	..	..	1	..	..	..	..	1	1	..	..	..	..	1	3	..	..	..	3		
<i>H</i>	3	3	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	2	..	..	1	3		
<i>I</i>	1	3	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	2	..	..	..	3		
<i>J</i>	1	2	..	..	..	1	1	1	..	..	..	..	..	..	1	..	..	2	..	..	..	5		
<i>K</i>	2	1	3	..	..	1	..	..	..	..	1	1	..	..	..	..	1	3	..	1	..	3		
<i>L</i>	1	..	2	1	..	2	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	3		
<i>M</i>	..	4	2	..	..	..	..	..	..	..	..	1	..	..	1	..	2	3	..	..	..	3		
<i>N</i>	..	3	1	..	..	..	..	..	..	..	..	1	..	..	1	..	1	2	..	..	..	3		
<i>O</i>	1	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	3		
<i>P</i>	1	1	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	3		
<i>Q</i>	1	1	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	2	..	..	..	3		
<i>R</i>	1	1	3	..	..	1	..	..	..	..	..	..	..	..	1	..	4	..	1	..	..	3		
<i>S</i>	1	1	1	..	..	1	..	..	..	..	1	1	..	..	..	..	..	2	..	..	..	3		
<i>T</i>	..	1	2	1	1	..	..	..	..	..	..	1	..	..	..	..	1	1	1	1	..	3		
<i>U</i>	2	1	1	..	..	..	..	..	..	..	1	..	..	..	1	..	1	3	..	..	..	3		
<i>V</i>	..	1	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	3		
<i>W</i>	2	3	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	2	..	..	3		
<i>X</i>	2	2	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2	2	..	..	3		
<i>Y</i>	1	2	1	..	1	1	1	1	..	..	..	..	..	..	1	..	1	3	..	..	..	5		
<i>Z</i>	2	3	..	..	..	2	1	1	..	..	..	..	..	..	1	..	..	3	..	..	..	5		
<i>Total</i>	32	52	26	4	4	15	3	3	1	5	10	10	2	7	9	1	16	65	2	4	4	..		

## CLASSIFICATION OF LOWER CASE WITH RESPECT TO LENGTH.

Lower Case as to Length.		
1. Body Letters . . . . .	{ 1. Length one space. 2. In number, <i>thirteen</i> .	
	3. They are: a, o, i, e, c, u, s, r, x, v, n, m and w.	{ 1. Length three spaces. 2. In number <i>four</i> .
1. Upper Extension . . . . .		3. They are: l, b, h and k.
2. Lower Extension . . . . .		{ 1. Length three spaces 2. In number <i>five</i> .
2. Extension Letters . . . .		3. They: z, y, j, g and q.
3. Double Extension . . . . .		{ 1. In number <i>two</i> , viz: p and f. 2. Length of p is two spaces above and one below—and of f three spaces above and two below.
4. Short Extension	{ 1. In number <i>two</i> , viz: t and d. 2. Length two spaces.	

## ORDER OF ANALYSIS FOR SINGLE LETTERS.

1. Name the letter stating, (1) whether lower case or capital, (2) whether body or extension if lower case and (3) whether stem, oval, or looped, if capital.
2. Give the primary principles or single elements.
3. Give the secondary principles or combined elements.
4. General consideration.

## MODELS FOR ANALYSIS.

 is a letter; lower case; body; its primary principles are left, left, right, straight, right: Its secondary principles are the pointed oval and the hook. *General Consideration:* It is the a-oval and semi-angle; by extending the straight line it forms *d*; by adding the lower extension and omitting the final curve it forms *q* or *g*.

 is a letter; capital; stem; its primary principles are left, right, left; left, left: Its secondary principles are the capital stem, long left curve and crossing mark. *General Consideration:* It belongs to the capital stem class. The capital stem is a double compound curve, three spaces high and slanting forward sixty degrees from the perpendicular, the simple curves being joined in the middle a space and a half above the line of arrangement, and there is added the oval finish which

is one and a half spaces above the base line on an increased slant of about ten degrees measured by an imaginary line passing through the center of the oval and touching the center of the stem. The finishing stroke of "A" is thirty-seven degrees forward on the regular slant. The crossing mark begins at the head line for body letters.

The capital stem, however, is capable of *great variation* from that in capital A, as will be seen by examining by analysis N, M, A, T, F, P, B, R, S, L, G, H, I, J, and K.

#### EXERCISES.

1. Analyze the capitals having the oval finish, viz: A, N, M, T, and F.
2. Analyze the stem-oval capitals, viz: P, B, R, G, H, and K.
3. The four based on the ellipse, viz: O, D, E, C.
4. The seven inverse-oval letters, viz: Z, X, W, Q, V, U, and Y.
5. Analyze the body letters.
6. Analyze the upper extension letters.
7. Analyze the lower extension letters.

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TO TEACHERS.—The exercises for analysis may be varied, adapting the work to the ages of the pupils instructed. The members of your class must have *good ideals* of the letters. View the letter as a whole, tear it apart by pieces or principles; show how the parts or principles build up the letters; how letters build words, and words build sentences. Deal largely with resemblances and differences or likes and unlikes of all the letters as compared with each other.

8. Analyze the double extension letters.
9. Analyze the short extension letters.
10. Name all the letters one space in height.
11. Name or execute all the letters three spaces in length.
12. Name or execute all the letters two spaces in length.

Critical analysis can only be secured step by step and will not be completed until the entire subject be studied and thoroughly reviewed. The best work is along the line of the pupil's growth and development.

ORDER OF ANALYSIS FOR WORDS, SENTENCES  
AND FORMS.

1. Read the sentence or word.
2. Point out and give reasons for (1) capitalization, (2) punctuation, (3) use of italics.
3. Classify the hand-writing whether slant, vertical, or running.
4. Discuss legibility, rapidity, beauty.
5. Discuss alignment, parallelism and uniformity.
6. Discuss shading and spacing.
7. Discuss slant, measurement, etc.
8. Discuss movement and execution in general and in particular necessary to its production.
9. Discuss the Law of Combinations which runs throughout written articulation forcing the hitherto rigid theoretical parts of single letters to vary owing to the style and manner of combination.

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To TEACHERS. — As the parts of this order may seem too abstruse for the average pupil, they may be omitted until the book is reviewed.

## VERTICAL PENMANSHIP.

TO THE TEACHER.—Analytical Tables should be constructed, if vertical hand be preferred, similar to the foregoing, using the following vertical letters or the letters of whatever system has been introduced into your school.

## PROPORTION OF LETTERS.

## AS TO HEIGHT.

1. All capital letters and all “long” lower case letters are of the same height.
2. The height of the “short” lower case letters are half the height of capitals and also half the height of “loop” and “stem” letters.
3. The semi-extended letters are the same length as capitals, that is “t” and “d” extend as high above the line as the capital letters and “p” and “q” as far *below* the line of arrangement as the capital letters do.
4. No letter one space high is written higher or lower than another, in this style of writing.

t d p q

Q E D C

S L G P B R

h k l b j y g z f

W Q Z U U Y J

a n m J J H K X

i u w n m v x o a e c r s

## AS TO WIDTH.

1. All the small letters are one space in width except "w" and "m."
2. The width varies owing to the size and style of the hand written.

## RESEMBLANCES AND DIFFERENCES.

1. Those letters which may be made the same in lower case as in capitals differing only in size, are : a, c, k, m, n, o, p, q, s, u, v, w, x, y, z.
2. Those made to resemble print as closely as possible (1) in lower case, are: k, d, t, p, q, z, h, i, u, n, m, x, o, a, e, c, s and r. (2) In capitals, O, C, S, P, Q, Z, H, X, T, F, B, R, V, W, Y, N, D, M, N, and Z.

*Remark:*—It must not be understood that so far as simplicity is concerned in this style of hand-writing that it can not be applied to standard slant, nor that the curves and loops of standard slant can

not be applied to vertical hand. Indeed, the placing of the elbow away from the side so that the pen makes vertical strokes, solves the whole problem. Farther than this it is a matter of taste and simplification in securing speed, legibility, beauty, etc.

#### ANALYSIS AND SYNTHESIS.

The same method holds good in vertical as in standard slant and the dot, right curve, left curve and straight line are the foundation of *all* form in any style of letter or combination of letters.

We are aiming at the wholeness of the science and art of penmanship. Every pupil and every teacher must endeavor to arrive at a correct idea of the relations of the parts of every letter, word or form. The objects of analysis and synthesis are to get clear images by studying relations, proportions, motive power, etc. In short, all that critical analysis comprehends is essential to sift out all that is useful, and to hold fast to that which is good.

All "systems" whether "vertical," "slant," "intermedial," "simplified," etc., are only means to an end and that end is to secure a knowledge of the wholeness of the science and art of penmanship. "The soul of art is beauty, and beauty of design rests on association which is its ruling and fundamental principle." All "systems" are modifications in part and contributions towards the one

great aim or wholeness of the knowledge which approaches to perfection in written language—the expression of the thought of humanity by the use of written or printed characters. Combine them all, and there remains a partially reared structure, but which is gradually being shaped to perfection as the years go by.



DIFFERENTIAL ANALYSIS,  
OR RESEMBLANCES AND DIFFERENCES.

**Oblique System, or Slant Hand.—**

1. Many prefer it.
2. It is considered most rapid.
3. It furnishes variety.
4. Beauty is prominent.
5. Shade is optional.
6. Capital stem optional.
7. The dot, straight line and curves used.
8. Speed depends on position and movement.
9. Joinings important.
10. Degree of slant of strokes 37 degrees.
11. Angle of legibility 23 degrees.
12. Angle of curves 30 degrees.
13. Projective and progressive movement.
14. Lines optional to the taste.
15. Short, long, semi-extended.
16. Lower case and capital dissimilar.
17. The smaller the faster.
18. Letters seldom small as print.
19. Hair strokes optional.
20. Straight line may be substituted for the capital stem.
21. Loops may be substituted by straight lines.
22. Insures beauty of curve.
23. May be like or unlike print as the writer prefers.

DIFFERENTIAL ANALYSIS,  
OR RESEMBLANCES AND DIFFERENCES.

**Vertical System, or Vertical Hand.—**

1. Many prefer it.
2. It is considered slow.
3. It lacks variety.
4. Beauty is sacrificed.
5. Shade is optional.
6. The capital stem optional.
7. The dot, straight line and curves used.
8. Speed depends on position and movement.
9. Joinings unimportant.
10. Degree of slant of strokes 0 degrees.
11. Angle of legibility 45 degrees.
12. Angle of curves 45 degrees.
13. "Circular," "rolling" movement.
14. All lines are heavy or strong.
15. Short and long letters only.
16. Lower case and capital similar.
17. The larger the plainer.
18. Letters seldom small as print.
19. Hair strokes optional.
20. Straight line may be substituted for the capital stem.
21. Loops may be substituted by straight lines.
22. Lacks beauty of curve.
23. May be like or unlike print as the writer prefers.

24. May be set in type and printed.
25. Great freedom.
26. View slightly obstructed.
27. Mostly executed by the progressive movement.
  
28. All movements applicable.
29. Connecting lines regarded as important.
30. Front position most hygienic.
31. Secures uniformity in direction.
32. Whole arm and finger movements.
33. Movements may be "combined."
34. Capitals are made up of beautiful curves.
35. Maximum degree of movement.
36. Technical execution in line with regularity and harmony in producing captivating figures in drawing, as birds, flowers, romantic ruins, animals, etc.
  
37. In line with map drawing.
38. Execution of a higher order of excellence, training higher and strengthening the motive power.
39. Danger of writer's cramp.
40. The eye is trained to appreciate regularity, harmony and refined taste.

We learn from a consideration like this, also, that there are extremes between which are certain means.

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NOTICE TO THE TEACHER — Everything bearing on penmanship must be sought in teaching one system as well as another. Aim at the whole field of penmanship.

24. May be set in type and printed.
25. Does not admit of flourishing.
26. View not interfered with by the pen point.
27. Mostly executed by drawing the arm backwards.
28. All movements applicable.
29. Connecting lines regarded as unimportant.
30. Front position most hygienic.
31. Secures uniformity in direction.
32. Whole arm and finger movements.
33. Movements may be "combined."
34. Points, straight lines and curves in capitals.
35. Minimum degree of movement.
36. Technical execution in line with print.
  
37. In line with map drawing.
38. Execution of a high order of excellence.
  
39. The danger of writer's cramp not lessened.
40. The eye is trained to appreciate regularity and harmony.

## CONDITIONS EFFECTING GOOD WORK.

**1. Temperature.**

If too low or too high, less work and poorest result.

If just right, most work and best result.

**2. Stimuli.**

If minimum, minor contraction.

If maximum, major contraction.

If medium, the best result and most work.

**3. Exercise.**

If not enough, weakening.

If too violent, a loss of delicacy.

If moderate, best result and most work.

**4. Blood Supply.**

If too weak, loss of power and faintness occurs.

If too rapid, loss of co-ordination and trembling occurs.

If normal, the best result and most work.

5. Good connection of the *writing instrument* with the higher nerve centers.

**Muscle Tonus** or Irritability is the power of responding to a stimulus and may be called forth by variations in temperature, by chemical stimuli, by mechanical stimuli or by electricity.

The nerve force, it must be remembered, is the normal stimuli during life.

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[The analysis of the conditions effecting good work may be made more critical after reviewing the chapter on "Movement," especially that part referring to the "motor apparatus."]

## ANALYSIS AND SYNTHESIS.

## EXERCISES.

1. Write five lines on the subject, "The Dot."
2. Write ten lines on "The Straight Line."
3. Write ten lines on "The Right Curve."
4. Write ten lines on "The Left Curve."
5. Write five lines on "The Uses of Primary Principles in Words."
6. Write twenty lines on "Combined Principles."
7. Write ten lines on "The Compound Curve."
8. Construct a table showing the simple and combined elements of the letters of any style of script you choose.
9. Write twenty lines giving resemblances and differences of any two "systems" you may choose.
10. Write fifteen lines on "The Conditions Effecting Good Work."

## EXAMINATION LIST.

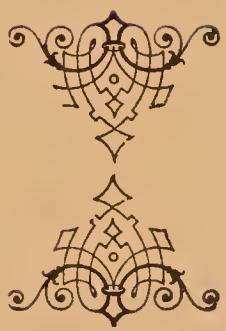
1. What is penmanship?
2. What is analysis?
3. What does critical analysis comprehend?
4. What is synthesis?
5. What is an alphabet?
6. What is the foundation of all written language?
7. What is written language?
8. What is language in general?
9. What is a letter?

10. What is an element?
11. What is the name of a letter?
12. What are the properties of a letter?
13. How are letters combined?
14. What is a principle?
15. What is the line of arrangement?
16. What is alignment?
17. What is the line of position?
18. What is the head line?
19. On what does the form or figure of a line depend?
20. How may a line be conceived as generated?
21. What is a curved line?
22. What is a broken line?
23. Distinguish between initial and final curves.
24. What is written articulation?
25. What is a horizontal right curve?
26. What is a horizontal left curve?
27. What is a character?
28. What is an angle?
29. What is a point?
30. What is standard slant?
31. What is the angle of straight lines?
32. What is the angle of curves? Connective slant?
33. What is the angle of legibility?
34. What is the law of combination?
35. How is the slant of curves measured?
36. Classify the principles of lower case.
37. Classify the principles of capitals.

38. What is the dot ? How executed ?
39. Give six uses of the dot.
40. What is a straight line ? How executed ?
41. Give ten uses of the straight line.
42. What is the right curve ?
43. Give seven uses of the right curve.
44. What is the left curve ?
45. Give seven uses of the left curve.
46. Give the uses of the primary principles in words.
47. Name the secondary or combined principles of lower case
48. What is an oval ?
49. Give an example of a regular curved form.
50. What is the pointed oval ?
51. What is the hook ?
52. What is the standard hook ?
53. What is the extended hook ?
54. What other name has the hook ?
55. What is the inverted hook ?
56. What other name is given the inverted hook ?
57. What is the double hook ?
58. What other name is given the double hook ?
59. What is a modified hook ?
60. What is the upper loop ?
61. What is a fold ? Kinds.
62. What is the point ?
63. What is a turn ?
64. What is a compound curve ?
65. What is a convexo-concave curve ? Example.

66. What is a concavo-convex curve? Example.
67. Primary principles of form and drawing are identical with what?
68. What is a form?
69. What are angular forms?
70. Give the best example of an angular form.
71. What are curved forms? Best example.
72. What are mixed forms?
73. Give an example of an irregular curved form.
74. Give an example of an irregular mixed form.
75. How show the continuation of forms without continuous lines?
76. With what are the primary principles of capitals identical?
77. What are the only kinds of lines found in "standard capitals?"
78. In what capitals is the straight line preserved?
79. Give the chief characteristics of capital curves.
80. In what proportion are capital letters executed?
81. Are analogues primary principles? Why?
82. Name the secondary or combined principles of capitals.
83. Group the letters containing the inverse oval.
84. Group the letters containing the direct oval.
85. Group the letters containing the stem oval.
86. Group the letters containing the looped stem.
87. Group the letters containing the tie.

88. Group the letters containing the cap.
89. What capitals are divided half above and half below the line of arrangement?
90. Name fifteen letters in which the capital stem may be found, though varied.
- 90-116. Give the analysis of lower case letters.
- 117-143. Give the analysis of capitals.
- 144-153. Give the analysis of figures.
154. Give the law of combinations.
155. Construct analytical tables using the vertical letters here given.
156. Give the proportion of vertical letters as to height and width.
157. Point out resemblances and differences in vertical letters.
158. Repeat the "remark."
159. What is true of analysis and synthesis in vertical writing?
160. What is the object of vertical, slant, or oblique, intermedial, simplified, etc., systems?
161. Compare "systems" to thirty or forty points.
162. Name some conditions effecting good work.



## CHAPTER IV.

### MOVEMENT.

1. **Definition.**
2. **Methods of Action**
  - 1. Prehension.
  - 2. Poising.
  - 3. Moving.
3. **Kinds of Movement**
  - 1. Flexion.
  - 2. Extension.
  - 3. Abduction.
  - 4. Adduction.
  - 5. Circumduction.
  - 6. Rotation.
4. **Classes of Movement**
  - 1. Primary.....
  - 2. Secondary or Combined
5. **Definitions.**
6. **Rests.....**
  - 1. Arm.
  - 2. Hand.
  - 3. Shoulder.
7. **Movements Permitted by**
  - 1. Shoulder Joint

1. Definition.  
 2. Names of Muscles.  
 3. Advantages.  
 4. Explanation  
 1. Definition.  
 2. Names of Muscles  
 1. Fore-arm.  
 2. Fore-arm and Finger.  
 3. Fore-arm and Arm.  
 4. Arm, Fore-arm and Finger.

1. Flexion.  
 2. Extension.  
 3. Abduction.  
 4. Adduction.  
 5. Circumduction.  
 6. Rotation.

**Movements  
Permitted by  
(Continued.)**

- 2. Elbow Joint . . . { 1. Flexion.  
2. Extension.
- 3. Wrist Joint—all but Rotation.
- 4. Carpal Joints . . . { 1. Flexion.  
2. Extension.
- 5. Carpo-Metacarpal—all but Rotation.
- 6. Metacarpo-Phalangeal—all but Rotation.
- 7. Phalangeal Joints { 1. Flexion.  
2. Extension.
- 8. The Eye { 1. Upward.  
2. Downward.  
3. Inward.  
4. Outward.  
5. Upward and Inward.  
6. Upward and Outward.  
7. Downward and Inward.  
8. Downward and Outward.

**8. Motor  
Apparatus  
in  
Penmanship**

- 1. Classes { 1. As to Will { 1. Voluntary.  
Power { 2. Involuntary.  
2. As to use . . . . { 1. Flexor.  
2. Extensor.
- 3. Names from . . . { 1. Direction.  
2. Uses.  
3. Situation.  
4. Shape.  
5. Number of Divisions.  
6. Points of Attachment.
- 1. Muscles { 4. Origin  
5. Insertion  
6. Stimulus  
7. Action  
8. Function  
9. Hygiene  
10. Muscles of Upper Extremity { 1. Origin.  
2. Insertion.  
3. Nervous Supply.  
4. Action.

**Motor  
Apparatus  
in  
Penmanship.**  
(Continued.)

2. Nerves	1. Divisions.....	1. Cerebro-Spinal. 2. Sympathetic.
	2. Stimuli 3. Function 4. Action 5. Hygiene	1. Automatic. 2. Sensory. 3. Motor. 4. Vaso-motor. 5. Trophic, Etc.
3. Bones.	1. Scapula. 2. Arm—Humerus.	
	3. Fore-arm.....	1. Radius. 2. Ulna.
4. Hand	4. Hand.....	1. Carpus (8). 2. Meta Carpus (5). 3. Phalanges (14).
	5. Function. 6. Hygienic Care.	
9. Writer's Cramp	1. Definition. 2. History.	
	3. Etiology (Cause)...	1. Predisposing. 2. Exciting.
4. Symptoms	1. Cramp. 2. Paresis. 3. Tremor. 4. Pain.	
	5. Vaso-motor and Trophic Dis- turbances.	

## 10. Exercises.

## 11. Review Questions.

## CHAPTER IV.

### MOVEMENT.

**Movement** is the action in the execution of characters and their combinations.

**Methods of Action.** 1. The act of prehension. 2. The act of moving the pen. 3. The poising of the fore-arm and hand.

CLASSES OF MOVEMENT. I. PRIMARY, II. SECONDARY.

I. **Primary Classification**.—1. Whole arm, 2. Finger movement.

**Whole Arm Movement**.—That movement produced by the action of the muscles of the arm, fore-arm, and hand, conjointly, in the formation of characters.

**Pen-prehension and Poising** are accomplished in this movement by the muscles of the fore-arm and hand. A slight finger movement for the long strokes is allowable.

**The Moveable Fulcrum** is the belly of the flexor muscles upon which the fore-arm rests.

**Poising of the Arm and Hand** is accomplished by the supinators longus and brevis, and the extensors of the thumb.

**The Act of Moving the Pen**, or forming the letters in this movement is mainly performed by the triceps, biceps, teres major, latissimus dorsi and pectoralis major, muscles.

**Advantages of the Whole Arm Movement.**—The largest number of muscles are brought into play and as a result a more even division of the work and less fatigue.

**NOTE.**—Explanation in substantiation of this movement as the primary movement. 1st. The elbow-joint admits only of *flexion* and *extension*. 2nd. The fore-arm is brought into *pronation* by the pronator radii teres (*origin* internal condyle of the humerus and *insertion* outer middle surface of the radius). 3rd. No movement can be made on the "rest" of the flexor muscles of the fore-arm without moving the lower end of the humerus. 4th. The origin and insertion of the biceps and triceps are such that the former is *flexor*, the latter *extensor* to the elbow-joint—flexion and extension being its only movement. Therefore, no so-called "fore-arm movement" can take place without the action of the muscles attached to the *shoulder blade* and *humerus*, hence the whole arm movement is the primary movement, and first in importance.

**Finger Movement.**—That movement produced by the action of the muscles of the finger and thumb in all strokes, the arm remaining quiescent except for lateral motion.

**The Act of Prehension** in the finger movement is accomplished by the first two dorsal interossei, the apponens, abductor, adductor and flexors brevis and longus pollicis, and the extensors of the thumb.

**The Act of Moving the Pen and Poising** in this movement is accomplished by the action of the *flexors* longus pollicis and profundus digitorum, and the *extensors* secundi internodii pollicis and communis digitorum and to a limited extent the interossei.

**The Arm and Hand Rests** are fixed in this movement except for lateral motion.

**Uses of the Finger Movement.**—This movement is allowable in the execution of figures, single letters and short combinations. It is not, however, to be preferred to the whole arm movement, but is frequently auxiliary thereto.

**2. Secondary Classification.**—1. Fore-arm. 2. Fore-arm and finger. 3. Fore-arm, finger, and arm. 4. Fore-arm and arm.

**Combined Movements** are the various combinations of the acts of muscles as a result of the whole arm and finger movements.

**The Fore-Arm Movement** is by far the most important of any of the combined movements.

**The Arm Rest** is the upper third of the fore-arm on the flexor muscles below the elbow, when the fore-arm is in pronation.

**The Hand Rest** is on the nails of the third and fourth fingers flexed when the fore-arm and hand are in pronation.

**The Wrist** and right side of the hand should never be permitted by supination to the extent of touching the paper. Not only does it interfere with motion, but is liable on account of perspiration to moisten the paper so the ink will spread or blur.

**The Foundation of Penmanship** is easy and well controlled action of the muscles in poising, pen-

prehension and formation of characters, and comprehends not only a thorough knowledge of the constituent parts of characters, but also of the motor apparatus called upon to produce the act.

**“Muscular Movement”** is understood to mean that in which the hand is propelled by the arm muscles, the finger muscles remaining quiescent.

The following expressions of movement are often convenient and self-explanatory: “Over rolling,” “under rolling,” “loop movement,” “capital movement,” “drawing movement,” “rotary movement,” “double wave movement,” “swinging movement,” “projected,” “progressive,” “lateral,” “forward,” “backward,” “combined,” etc., etc.

**Projected Movement** is upward or downward.

**Progressive Movement** is to the right or to the left across the page. Other movements are derived from these two.

The rate of speed in movement should always be at a good rate and gradually increasing as *practice* goes on from 90 to 140 counts and higher. Each stroke, long or short, should be made at one count or tick of the metronome or time to music if it be used.

**Movement Drill.**—A movement drill of ten or fifteen minutes should always be practiced before beginning the regular writing lesson. It may consist of open-spaced work, of encircling letters or words, swinging right and left, executing capitals, groups,

etc., tracing with dry pen, whole arm movements in the air, polygrams, etc.

**The Test of Movement** is to keep the pen *in motion* in close-spaced writing.

**Flexion.**—That motion of the joint which gives the distal member a continually decreasing angle with the axis of the proximate part.

**Extension.**—That motion of the joint which increases the angle even to its disappearance.

**Abduction.**—The action by which the parts of the body are drawn away from the median line or axis.

**Adduction.**—The action by which the parts of the body are drawn toward its axis or median line.

**Circumduction.**—The act of describing lines in any direction or rambling about around the median line.

**Rotation.**—The act of turning or rotating partially or wholly around the axis or median line.

**The Axis.**—The imaginary line passing through the human body or its parts on which it or they may be supposed to revolve.

**The Median Line** is an ideal line dividing the body longitudinally and symmetrically into two parts, the one on the right and the other on the left. When reference is made to the arm, etc., it is the imaginary line running through the middle.

**Execution** is the formation of characters in visible language.

**Movement** is the *action* in the execution of characters and their combinations, and is allowed and maintained mainly by the agency of the nerves, bones, muscles, and joints.

**The Arm** is situated between the shoulder and the elbow and is composed of one bone—the humerus.

**The Shoulder Joint** is a ball-and-socket joint; and the bones entering into its formation are the large globular head of the humerus received into the shallow glenoid cavity of the scapula,—an arrangement which permits of movement in every direction, forwards, backwards, abduction, adduction, circumduction, and rotation.

**The Fore-arm** is situated between the elbow and wrist, and is composed of two bones—the ulna and the radius.

**The Elbow Joint** is a hinge-joint and is formed by the trochlear surface of the humerus which is received into the greater sigmoid cavity of the ulna and admits of movements peculiar to this joint, those of flexion and extension, while the head of the radius articulating with the humerus, and the circumference of the head of the radius with the sigmoid cavity of the ulna allows of the movement of rotation of the radius on the ulna which is the chief action of the superior radio-ulnar articulation. The movement which occurs in the inferior radio-ulnar articulation (*i. e.* at the lower end of the radius

and ulna), is limited to rotation of the radius round the head of the ulna--if forwards it is *pronation*; if backwards, *supination*.

**The Wrist Joint.**—The flexor tendons cover it in front and the extensors behind. The movements permitted are *flexion*, *extension*, *abduction*, *adduction* and *circumduction*. It is totally incapable of rotation.

**Articulations of Carpal Bones.**—The movement between the two rows is limited chiefly to *flexion* and *extension*.

**Carpo-metacarpal Articulations.**—The movement is limited to a slight gliding of the articular surfaces upon each other which varies in different joints. The metacarpal of the thumb with the trapezium is most moveable permitting *flexion*, *extension*, *adduction*, *abduction*, and *circumduction*.

**Metacarpo-phalangeal Articulations.**—The movements permitted by these joints are *flexion*, *extension*, *adduction*, *abduction*, and *circumduction*. The lateral movements are very limited.

**Phalangeal Joints.**—The only movements are *flexion* and *extension*, and more extensive between the first and second phalanges than between the second and third. The movement of *flexion* is very considerable but the *extension* is limited.

**The Motor Apparatus.**—This may be classed under three heads, viz:—

## I, MUSCLES. II, NERVES. III, BONES.

**I. Muscles.**—With respect to the *will* they are either *voluntary* or *involuntary*.

The voluntary are controlled by the will and may be educated. The involuntary are not under control of the will. With respect to use they are either flexors or extensors. The flexors pass under joints and the extensors pass over.

**The Names of Muscles** have been derived from their situation, direction, uses, shape, number of divisions, and from their points of attachment.

**Muscle Stimulus.**—The stimulus is vital, *i. e.*, through the nervous system which governs all muscular movement and all processes of organic life. Some authors mention mechanical, chemical, and electrical stimulus, but these divisions may well be dispensed with.

**The Origin of a Muscle** is the central attachment or attachments.

**The Insertion of a Muscle** is the point or points upon which it is directed.

**The Function or Use of Muscles.**—Of the *voluntary* to obey the will, that is to give power of locomotion, ability for work, to communicate either in written language or otherwise. Of the *involuntary*, to control circulation, respiration, peristalsis and such acts as are uncontrolled by the will.

**The Eye.**—The eye is moved by 6 muscles—4 *recti* and 2 *oblique*.

MOVEMENT.	MUSCLE.
Upward .....	Sup. rectus and inf. oblique.
Downward .....	Inf. rectus and sup. oblique.
Inward .....	Internal rectus.
Outward .....	External rectus.
Upward and inward....	Sup. and int. recti and inf. oblique.
Upward and outward ...	Sup. and ext. recti and inf. oblique.
Downward and inward ..	Inf. and int. recti and sup. oblique.
Downward and outward	Inf. and ext. recti and sup. oblique.

**The Centre of Motion** lies on the optic axis 1.77 m m. (about 1-14 inch) behind its centre.

**The Muscle Plane** is the plane passing through the center of motion.

**The Base Line** is the line connecting the centers of motion.

**The Axis of Turning** is the perpendicular to the muscle plane at the turning point.

**Muscles of the Upper Extremity** giving their origin and insertion and nervous supply. The — dash divides the origin from the insertion, and the nervous supply is indicated by [ ] brackets.

## UPPER EXTREMITY.

### MUSCLES.

#### (I) ANTERIOR THORACIC REGION, 3.

**Pectoralis maj'or**: sternal half clavicle,  $\frac{1}{2}$  front of sternum down to 7th rib, cartilage of true ribs,

aponeurosis — external oblique — anterior bicipital ridge of humerus. [Anterior thoracic.]

**Pectoralis minor** : 3d, 4th and 5th ribs — anterior border coracoid process of scapula. [Anterior thoracic.]

**Subclavius** : 1st rib-cartilage — under surface middle 3d of clavicle. [Branch from 5th and 6th cervical.]

(2) LATERAL THORACIC REGION.

**Serratus magnus** : 9 digitations from the 8 superior ribs — whole length inner margin scapula, posterior surface. [Posterior thoracic.]

(3) ACROMIAL REGION, 1.

**Deltoides** : outer 3d anterior border, upon surface, of clavicle, outer margin, upper surface acromian process; whole length lower border spine of scapula — prominence outer surface (middle) humerus. [Circumflex.]

(4) ANTERIOR SCAPULAR REGION, 1.

**Subscapularis** : inner  $\frac{2}{3}$  subscapular fossa — lesser tuberosity humerus. [Subscapular.]

(5) POSTERIOR SCAPULAR REGION, 4.

**Supraspinatus** : internal  $\frac{2}{3}$  of supra-spinous fossa of scapula — upper facet greater tuberosity humerus. [Supra-scapular.]

**Infra-spinatus** : internal  $\frac{2}{3}$  of infra-spinous fossa — middle facet greater tuberosity humerus. [Supra-scapular.]

**Te'res mi'nor**: dorso-axillary border scapula — lowest facet greater tuberosity of humerus. [Circumflex.]

**Te'res ma'jor**: dorsum inferior angle scapula — posterior bicipital ridge humerus. [Subscapular.]

(6) ANTERIOR HUMERAL REGION, 3.

**Coraco-brachia'lis**: apex coracoid process scapula — rough ridge inner (middle) side of humerus. [Musculo-cutaneous.]

**Bi'ceps**: long head above glenoid cavity; short head, coracoid process — bicipital tuberosity radius. [Musculo-cutaneous.]

**Brachia'lis anticus**: lower half outer and inner surfaces shaft humerus, septa — under surface coronoïd process ulna. [Musculo-cutaneous, musculo-spiral.]

(7) POSTERIOR HUMERAL REGION, 2.

**Tri'ceps**: long head, depression below glenoid cavity; external head, posterior superior part of humerus; internal head posterior surface of humerus *below* musculo-spiral groove — olecranon process ulna. [Musculo-spiral.]

**Subancone'us**: just above olecranon fossa humerus — posterior ligament elbow-joint. [Musculo-spiral.]

(8) ANTERIOR BRACHIAL REGION. SUPERFICIAL LAYER, 5.

**Prona'tor ra'dii teres**: above internal condyle humerus, common flexor tendon, fascia, inner side

coronoid process ulna — rough ridge radius, outer (middle) surface. [Median.]

**Flex'or car'pi radia'lis** : common flexor tendon, internal condyle humerus, fascia — base of index metacarpal. [Median.]

**Palma'ris longus** : common internal condyloid (humerus) flexor tendon, fascia — annular ligament and palmar fascia. [Median.]

**Flex'or car'pi ulna'ris** : 1st head, common flexor tendon internal condyle humerus; 2d head, internal margin olecranon — pisiform bone. [Ulnar.]

**Flex'or subli'mis digito'rum** : 1st, internal condyle humerus (common flexor tendon); 2d head, inner side coronoid process ulna; 3d head oblique line radius — lateral margins 2d phalanges, tendon split for passage of flexor profundus digitorum. [Median.]

#### (9) ANTERIOR BRACHIAL REGION, DEEP LAYER, 3.

**Flex'or profun'dus digito'rum** : upper  $\frac{2}{3}$  anterior and inner surface ulna, inner side coronoid process interosseous membrane — bases last phalanges. [Ulnar, anterior interosseous.]

**Flex'or lon'gus pol'licis** : upper  $\frac{2}{3}$  anterior surface radius, interosseous membrane — base last phalanx thumb. [Anterior interosseous.]

**Prona'tor quadra'tus** : oblique line and lower 4th ulna — lower 4th anterior surface and external border radius. [Anterior interosseous.]

## (10) RADIAL REGION, 3.

**Supina'tor lon'gus** : upper  $\frac{2}{3}$  external condyloid ridge humerus, septum — styloid process radius. [Musculo-spiral.]

**Exten'sor car'pi radia'lis longior** : lower third external condyloid ridge humerus, septum — base metacarpus indicis. [Musculo-spiral.]

**Exten'sor car'pi radia'lis bre'vior** : common tendon external condyle humerus, external lateral ligament, septa — base metacarpus middle finger. [Posterior interosseous.]

## (II) POSTERIOR BRACHIAL REGION, SUPERFICIAL LAYER, 4.

**Exten'sor commu'nis digito'rūm** : common tendon external condyle humerus, septa — 2d and 3d phalanges. [Posterior interosseous.]

**Exten'sor min'imi dig'iti** : external condyle humerus, septa — unites with tendon extensor communis digitorum to be inserted into 2d and 3d phalanges of little finger. [Posterior interosseous.]

**Exten'sor car'pi ulna'ris** : common tendon external condyle humerus, middle 3d posterior border ulna, fascia — base 5th metacarpus. [Posterior interosseous.]

**Ancone'us** : back part outer condyle humerus — side, olecranon and upper posterior 3d ulna. [Musculo-spiral.]

## (12) POSTERIOR BRACHIAL REGION, DEEP LAYER, 5.

**Supina'tor bre'vis**: external condyle humerus, external lateral and orbicular ligaments, oblique line ulna—(surrounds radius at its upper part) back part inner surface; outer edge bicipital tuberosity; oblique line of radius. [Posterior interosseous.]

**Exten'sor os'is metacar'pi pol'licis**: posterior surface shaft ulna and radius (middle 3d), interosseous membrane—base 1st metacarpus. [Posterior interosseous.]

**Exten'sor pri'mi interno'dii pol'licis**: posterior surface radius, interosseous membrane—base 1st phalanx thumb. [Posterior interosseous.]

**Exten'sor secun'di interno'dii pol'licis**: posterior face ulna, interosseous membrane—base 2d phalanx thumb. [Posterior interosseous.]

**Exten'sor in'dicis**: posterior surface ulna, interosseous membrane—joins tendon extensor communis digitorum to 2d and 3d phalanges indicis. [Posterior interosseous.]

## (13) THUMB, RADIAL REGION, 4.

**Abduc'tor pol'licis**: ridge trapezium and annular ligament—radial side base 1st phalanx thumb. [Median.]

**Oppo'nens pol'licis**: palmar surface trapezium, annular ligament—whole length 1st metacarpus, radial side. [Median.]

**Flex'or bre'vis pol'licis**: trapezium, outer  $\frac{2}{3}$  annular ligament, trapezoid, os magnum, base 3d metacarpus, tendon flexor carpi radialis — both sides base 1st phalanx thumb. [Median, ulnar.]

**Adduc'tor pol'licis**: whole length 3d metacarpus — ulnar side base 1st phalanx thumb. [Ulnar.]

(14) LITTLE FINGER, ULNAR REGION, 4.

**Palma'ris bre'vis**: annular ligament palmar fascia — skin inner border palm. [Ulnar.]

**Abduc'tor min'imi dig'iti**: pisiform bone, tendon flexor carpi ulnaris — ulnar side base 1st phalanx little finger. [Ulnar.]

**Flex'or bre'vis min'imi dig'iti**: tip unciform, process annular ligament — base 1st phalanx little finger. [Ulnar.]

**Oppo'nens min'imi dig'iti**: unciform process annular ligament — ulnar side 5th metacarpus. [Ulnar.]

(15) MIDDLE PALMAR REGION, 3.

**Lumbica'les**: (4); accessories to flexor profundus digitorum — tendon extensor communis digitorum. [Median and Ulnar.]

**Interos'sei dorsa'les**: (4); metacarpi — base 1st phalanges 1st, 2d, 3d fingers. [Ulnar.]

**Interos'sei palma'res**: (3); 2d, 4th and 5th metacarpi — 1st phalanges of same fingers. [Ulnar.]

MOVEMENT.

**The Action of Muscles** upon the Scapula, Humerus, Forearm, Carpus, Thumb and Fingers.

**Scapula:** forwards by pectoralis minor, serratus magnus. Backwards, trapezius, rhomboidei, latissimus dorsi. Upwards, trapezius, levator scapulæ, rhomboidei. Downwards, trapezius, latissimus dorsi, pectoralis minor.

**Humerus:** forwards, deltoid, pectoralis major; assisted sometimes, by biceps, caraco-brachialis. Backwards, deltoid, teres major and minor, triceps (long head), latissimus dorsi. Inwards, pectoralis major, latissimus dorsi. Rotated inwards, subscapularis, assisted by pectoralis major, lat. dorsi, teres major. R. outwards, supra-spinatus, infra-spinatus, teres minor.

**FOREARM:** forwards, biceps, brachialis anticus, pronator radii teres; assisted by flex. carpi rad., flex. sublimis digitorum, flex. carpi. ulnaris, supinator longus. Backwards, triceps, anconeus. Rotated inwards, pronator radii teres, flex. carpi radialis, palmaris longus, flexor sublimis dig., pronator quadratus. R. outwards, biceps, supinator brevis, extensor secundi internodii pollicis.

**Carpus:** forwards, flex. carpi radialis, palmaris longus, flex. sublimis and profundus dig, flex. carpi ulnaris, flex. longus pollicis. Backwards, ext. carpi rad. long. and brev. ext. secundi internodii pollicis, ext. indicis, ext. com. dig., ext. prop. pollicis. Outwards, flex. carpi rad., ext. carp. rad. long. and brevior, ext. ossis metacarpi pol., ext. primi internodii pol. Inwards, flex. sublim. and profund.

digitorum, flex. and ext. carpi ulnaris, ext. com. dig., ext. min. digit.

**Thumb:** inwards and forwards, opponens, flex. brevis and flex. long. pollicis. Outwards and backwards, ext. ossis metacarpi, ext. primi and secundi internodii pollicis. Upwards and away from fingers, abductor, flex. brev. pollicis. Backwards and towards fingers, adductor, ext. primi and secundi internodii pollicis.

**Fingers:** flexed, flex. sublimis and profundus dig., lumbricales, flex. and abductor minimi digit. Backwards, ext. communis, ext. minimi digit and indicis. Outwards, interossei, abductor indicis and minimi digit. Inwards, interossei, abductor minimi digit.

**II. The Nerves.**—There are two great systems—the Cerebro-Spinal and the Sympathetic.

**I. The Cerebro-Spinal** consists of the brain and 12 pairs of cranial nerves, and of the spinal cord and 31 pairs of spinal nerves.

**II. The Sympathetic** consists of a double chain of ganglia on each side of the spinal column from the base of the brain to the coccyx and also numerous ganglia in other parts of the system.

These two great systems by means of their centres, ganglia, commissures, and infinite divisions and subdivisions associate the different parts of the body in such a manner that stimulus applied to one organ may excite the activity of another, producing co-ordination, co-operation, and rhythm of the en-

tire human structure; the *force* for all *motion* and *sensation*.

**The Names of Nerves** have been derived from their situation, direction, uses, shape, and number of divisions.

**Motor Nerves** transmit impulses *out* from the centre to the periphery, the force travelling at the rate of 120 to 150 feet per second.

**Sensory Nerves** transmit impressions *in* from the periphery to the center, the force travelling at the rate of 190 to 200 feet per second.

**Automatic or Reflex Action.**—Muscular action without the intervention of consciousness or volitional power. *e. g.* eyelids wink before a blow. *Writing becomes automatic* when the sentence is conceived, the hand committing it to paper without thought of the intermediate muscular acts.

#### MOTOR APPARATUS.

**Vaso-motor Nerves** regulate the caliber of the blood vessels.

**Trophic Nerves** regulate the influence of secretion, and nutritional changes.

**Efferent Nerves** pass *out from* the centers.

**Afferent Nerves** pass *in to* the centers.

**Nervous Stimuli**—mechanical, electrical, thermal, and chemical.

**Function or Uses.** To govern all muscular movement and all processes of organic life, whether auto-

matic or volitional. It is the mainspring of each organ, the presiding genius of each function, the basis and substance of all life. In learning how to order the body aright, and how to have it fulfil our orders we at the same time get mental and moral stamina. It is when seeking to develop the *wholeness of our being* that we get the benefits of education. It is this well-fed, well-slept, well-trained, well-exercised nervous system, more than anything else that has to do with our whole well-being. This means all that can be meant for us in this world, and includes much that is hopeful for us in the next. It is of first importance in penmanship as in everything else. Be too proud to abuse it, too proud to be swayed by any opinions but those of the worthy and of the good.

### III. BONES.

**The Scapula**.—a triangular shaped bone situated on the upper and back part of the thorax, extending from the second to the seventh rib, and articulates with the clavicle and humerus.

**The Arm or Humerus**, is the longest, largest bone of the upper extremity and articulates with the glenoid cavity of the scapula and with the ulna and radius.

**The fore-arm**, is composed of two bones, viz., the ulna and radius. The *ulna* is at the inner side and parallel with the radius and is the longer and larger of the two. Its upper extremity, thick and

strong, forms a large part of the articulation of the elbow joint; the lower extremity is very small and excluded from the wrist-joint by the interposition of an inter-articular fibro-cartilage.

The *radius* is on the outer side of the fore-arm, and parallel with the ulna, the upper end is small and forms only a small part of the elbow-joint; its lower end is large and forms the chief part of the wrist. It articulates with the humerus, ulna, scaphoid and semilunar.

**The Hand**,—is sub-divided into three segments,— the (1) carpus or wrist, (2) metacarpus or palm, and (3) phalanges or fingers.

**The Carpus**,—consists of eight bones arranged in two rows. Beginning at the radial side, upper row, are the scaphoid, semilunar, cuneiform, and pisiform. Beginning on the same side and named in the same order are the trapezium, trapezoid, os-magnum and unciform.

**The Metacarpus**,—or palm.—They are long cylindrical bones forming the palm of the hand, and are *five* in number.

**The Phalanges**,—are the bones of the fingers. They are *fourteen* in number, three for each finger and two for the thumb.

**The Function**, or uses of the bone,—to serve for the attachment of muscles— to keep the organism from *sinking* by its own weight— they are the framework.

**Forethought and Care of the Motor Apparatus.**

The prime necessity for its highest welfare is to preserve the general health of the body. Secure good wholesome nutritious diet. Let work and rest alternate in close relationship. The welfare of the nervous system is the *radical aim* of all hygienic care. There is no wear and tear like that of a disturbed nervous organization. Discipline the will power; exercise self-control. Avoid ill-temper, bad habits and discouragement. Avoid over-work and overstrain by rest, recreation and amusement. Sleep is the great panacea for tired nerves. Other invigorations may be sought in exercise, change of air and scene, and sometimes by the use of special medicinal tonics.

*Avoid worry* by courage, truthfulness, patience, cheerfulness, unselfishness and kindness in the execution of all social, commercial and business transactions. It is a noble tact, a *tactus eruditus* to be able to discern worry due to overwork or too much study.

 *Avoid the use of alcohol, opium, and other narcotics.* Give special attention to diseases of the bones particularly fractures, and sprained ligaments. *Rest* is absolutely essential. *Felons* or periosteal abscesses originate beneath the periosteum and may be cured by making an incision through the periosteum and allowing the pus to escape. Give all the muscles their share of exercise according to the age.

and health — using them and resting them, alternately, frequently and regularly.

Not all begin with the same *capital of health*, or even acquire it, but they can, at least, learn what their capital is, and its ability of preservation or increase, and live accordingly.

### WRITER'S CRAMP.

**NOTE:** If this subject seems to be too abstruse it may be deferred until the book is reviewed.

**Definition:** A certain train of nervous symptoms such as spasm, paralysis, pain, tremor, vaso-motor disturbances, etc., either alone or in complicated combinations which follow certain muscular acts and often accompanied by a marked condition of general nervousness. They occur as a result of a constant muscular strain combined with more or less delicate movements of co-ordination continued for long periods at a time.

**History:** Some of these neuroses have been recognized for years. This is particularly true of writer's cramp, the earliest notice of which we are able to discover was made in a small work by Ramazini printed in 1746. Most of the articles upon this subject have been written during the last fifteen or twenty years.

**Etiology:** Many of our every-day actions, which we perform almost automatically, are the result of months and even years of practice; this is well exemplified in the act of writing. At first each

letter is made by a separate and deliberate act of volition, and considerable thought has to be expended upon its formation; but little by little the preponderance of the volitional element decreases, until at last we write with but little consciousness of each separate movement, and the act becomes almost an automatic one, the sentence being conceived and the hand committing it to paper with but little thought of the intermediate muscular acts. When, however, any one of the various muscles whose integrity is necessary for the automatic performance of any act becomes affected, let the lesion be in the muscle itself or anywhere in the nerve-substance between it and its center, or in that centre itself in such a way as to hinder its free response to the nervous stimulus, then the will has to be especially directed to the act in order to counteract the effect of the disability, and some other muscle or group of muscles must be substituted in the place of the one incapacitated. That which was previously performed easily and without fatigue now becomes difficult and exhausting.

The writer may probably notice at times that he is exerting a greater amount of muscular force in pen-prehension than usual, and may even find that he is producing a disagreeable feeling in the phalanges by the pressure he is using; he will also probably be aware of a burning sensation between the shoulder-blades. These symptoms are in all

probability dependent upon, or at least coincident with a hyperæmia of the nerves and spinal cord, and if persisted in for a long time without proper intervals of rest must sooner or later interfere with the healthy condition of the spinal cord, as well as of the nerves and muscles of the hand and arm.

The manner of writing and of holding the pen is of considerable influence in the causation of this trouble. When the pen-holder is allowed to drop below the head of the first metacarpal bone the movements of the fingers are restricted ; the middle and forefinger upon one side of the holder and the thumb on the other act upon the principle of the toggle-joint and so producing the " toggle-joint " movement as the pen holder is drawn backward to make a stroke binding the distal phalanges tightly against the holder, and so causing fatigue and awkwardness. If the holder is made to cross the proximal extremity of the first phalanx of the forefinger the " toggle-joint " movement is destroyed.

Writing with a pencil is not so apt to bring on fatigue and nervous trouble as pen writing, since with the former, no particular angle is to be maintained between the point and the paper, and as the pencil may be rotated at pleasure, there is therefore less effort at poising.

The invention of the Morse telegraph in 1844 has proved a fertile source of writer's cramp. Words are often received and written down at the rate of thirty, forty or even more, words per minute. Thirty

words per minute would require on an average about 600 separate contractions per minute or 36,000 contractions per hour.

The grasp of the average man, which includes all the flexor muscles of the fingers and thumb, equals 125 pounds, while the powers of the flexors of the wrist, exclusive of the fingers, equals 40 pounds. In marked contradistinction to this the extensors of the wrist register 35 pounds, and the extensors of the fingers only 7. Total power, then, of all the flexors is 165, and that of the extensors 42 pounds, nearly four times less (3.92).

The predisposing causes of writer's cramp are hereditary influence and nervous temperament, the use of alcohol, tobacco and cigarettes, age, wasting diseases, traumatism, etc.

The symptoms may be classed under five heads, —viz: 1. Cramp or spasm. 2. Paresis or paralysis. 3. Tremor. 4. Pain or abnormal sensation. 5. Vaso-motor and trophic disturbances.

These may, and generally do, exist in various combinations.

**1. Cramp or Spasm.**—This is one of the most frequent symptoms and attracts the most attention. The contraction may affect either the extensors or the flexors; if the extensors, the pen can with difficulty be kept upon the paper and the stroke movement is interfered with; if the spasm is of the flexors it most commonly affects the forefinger and thumb; the pen is then forced downward and upon

making the upward movement catches in the paper; or by flexion and adduction of the thumb the penholder may be twisted from the grasp with force sufficient to throw it to some distance.

Lock-spasm is when the fingers or hand become locked in a strong contraction.

The writer so affected soon changes the manner of holding the penholder or pencil.

**II. Paresis or Paralysis.**—When this obtains an intense feeling of fatigue appears, writing becomes very difficult or impossible from an inability of the muscles to obey the will. There may be a sense of utter weakness and powerlessness, and the penholder or pencil is held in a feeble manner, and sometimes falls from the grasp.

**III. Tremor.**—In some cases trembling or unsteadiness may be sufficient to cause unsteadiness in work, prolonged work and overfatigue being most apt to produce it. It is one of the premonitory symptoms of professional muscular atrophy.

**IV. Pain or Abnormal Sensation.**—The sense of tire may be slight or it may be of an intense aching character, almost unendurable. Tension and pain in the rigid muscles; pain over the various nerve trunks and their branches solicited on pressure or spontaneous, tinkling, itching, or a sense of numbness. Burning or stinging pain under the nail. The arm may feel "lame" and at the same time there may be a painful sensation or sense of heat in the

shoulders, or cervical or upper dorsal spine, or there may be a soreness and sense of tightness as of a band around the wrist, or a tense feeling as if the skin would burst when the hand was closed. A curious form of pain as of a bar thrust diagonally through the hand has been complained of.

**V. Vaso-Motor and Trophic Disturbances.—** When these disturbances are present besides fatigue or cramp or some evidence of nerve-lesion, the veins on the back of the hand and fingers will be seen to slowly enlarge and perhaps extend over the whole arm, the parts becoming more or less turgid with blood, accompanied by a sensation of throbbing and an increased temperature. A rare nutritional symptom is the brittleness of the nails which crack off like shell; glossy appearance of the skin; hyperæsthesia of the distal phalanges of the fingers, etc.

#### IT MAY BE WELL TO KNOW

that writer's cramp, scrivener's cramp, scribe palsy, pen palsy, and stammering of the fingers, all mean the same.

A similar condition of the nerves and muscles concerned is seen in shoemaker's cramp, musician's cramp, milking cramp, cigar maker's cramp, coachman's cramp, dancer's cramp, glass blower's cramp, pianist's cramp, compositor's cramp, and sempstress' cramp.

## EXERCISES — TOPIC METHOD.

1. Write six lines on "Movement Drill."
2. Write six lines on "The Shoulder Joint."
3. Write fifteen lines on "The Elbow Joint."
4. Write five lines on "The Wrist Joint."
5. Write six lines on "The Use of Muscles."
6. Write ten lines on "The Biceps and Triceps."
7. Write ten lines on "The Action of Muscles of the Humerus."
8. Write five lines on "Automatism or Reflex Action."
9. Write fifteen lines on the "Uses and Care of the Nervous System."
10. Write ten lines on "The Bones of the Fore-arm."
11. Write twenty lines on "The Care of the Motor Apparatus."
12. Write forty lines on "The Etiology of Writer's Cramp."
13. Write one page discussing "The Symptoms of Writer's Cramp."

## REVIEW QUESTIONS.

1. What is movement?
2. Give the three methods of action in movement.
3. Give the two general classes of movement.
4. Give the primary classification of movement.
5. What is the whole-arm movement?
6. What is prehension?
7. What is poising?
8. How is pen-prehension and poising accomplished in the whole-arm movement?
9. What is called the "moveable fulcrum" of the fore-arm?
10. How is the poising of the arm and hand accomplished?
11. How is the act of moving the pen mainly performed?
12. Name some advantages of the whole-arm movement.
13. How show that whole-arm is the primary movement?
14. How is finger movement produced?
15. How is the act of prehension accomplished in the finger movement? The act of moving the pen? Of poising?
16. Of what motions are the arm and hand rests capable of in finger movement?
17. Give uses of the finger movement.

18. Give the secondary classification of movement.
19. What are combined movements?
20. Which is the most important of all the combined movements?
21. Describe fully the arm rest.
22. Describe fully the hand rest.
23. Should supination be allowed?
24. Should any flesh touch the paper? No.
25. What may be considered the foundation of penmanship?
26. What is muscular movement?
27. What is projected movement?
28. What is progressive movement?
29. What rate of speed should be practiced?
30. Discuss movement drills.
31. What is the test of movement?
32. What is flexion?
33. What is extension?
34. What is abduction?
35. What is adduction?
36. What is circumduction?
37. What is rotation?
38. What is the axis?
39. What is the median line of the body?
40. Define execution and movement.
41. What bone composes the arm?
42. Describe the shoulder joint.
43. What movements are permitted by the shoulder joint?

44. Where is the fore-arm? What bones in the fore-arm?
45. What kind of joint is the shoulder?
46. What kind of joint is the elbow joint?
47. What movements are peculiar to the elbow joint?
48. Explain the movement of rotation on the ulna.
49. If the radius rotates around the head of the ulna *forwards* what does it produce? If *backwards*?
50. Name the movements permitted by the wrist joint.
51. What tendons cover the wrist joint? How?
52. What movements does the articulations of the carpal bones permit?
53. Give the movements permitted by the carpo-metacarpal articulations.
54. Give the movements permitted by the metacarpo phalangeal articulations.
55. What movements have the phalangeal joints?
56. Give the motor apparatus.
57. How are the muscles classified with respect to the will?
58. Distinguish between voluntary and involuntary muscular actions?
59. Distinguish between flexors and extensors.
60. From what have the *names* of muscles been derived?
61. Describe the muscle stimulus.
62. What is the origin of a muscle?

63. What is the insertion of a muscle?
64. What is the function or use of muscles?
65. Name the muscles of the eye.
66. Give the eight movements of the eye.
67. Where is the center of motion in the eye?
68. What is the muscle plane?
69. What is the base line (eye)?
70. What is the axis of turning?
- (71-102). Give the origin and insertion of the muscles of the upper extremity and nervous supply.
103. Give the action of the muscles on the humerus.
104. Give the action of the muscles on the forearm.
105. Give the action of the muscles on the carpus.
106. Give the action of the muscles on the thumb.
107. Give the action of the muscles on the fingers.
108. Name the two great systems of nerves.
109. Of what does the cerebro-spinal system consist?
110. Of what does the sympathetic system consist?
111. What is the office of these two great systems combined?
112. Whence come the *names* of nerves?
113. What are motor nerves? Velocity?
114. What are sensory nerves? Velocity?
115. What is automatism or reflex action?
116. When has writing become automatic?
117. What is the function of vaso-motor nerves?

118. What is the function of tropic nerves?
119. What are efferent nerves?
120. What are afferent nerves?
121. Name the nervous stimuli.
122. Discuss fully the functions or uses of the nervous system.
123. Describe and locate the scapula.
124. Describe and give the articulations of the humerus.
125. Describe the fore-arm.
126. Give the articulations of the bones of the fore-arm.
127. Which fore-arm bone is excluded from the wrist joint? How?
128. On which sides of the fore-arm are the ulna and radius respectively?
129. Give the subdivisions of the hand.
130. Name the carpal bones in order beginning at the radial side, upper row. How many?
131. How many metacarpal or palm bones?
132. What are the phalanges? How many? Where?
133. Give the function or uses of bones.
134. Discuss fully the forethought and care necessary to first class motility.
135. What is the radical aim of all hygienic care?
136. What is meant by "Capital of Health?"
137. What is writer's cramp?
138. Give etiology or cause of writer's cramp?
139. What can you say of the manner of writing and holding the pen as a cause of this trouble?

140. Name some predisposing causes of writer's cramp.

141. Classify the symptoms of writer's cramp.

(142 148.) Discuss each class fully.

149. How guard against writer's cramp?

150. Why is pencil-writing less apt to produce writer's cramp than pen-writing?

151. Give synonyms of "writers's cramp."

For "movement drills," "practice," "drawing," etc., etc., see chapter on "General Practice."



## CHAPTER V.

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### EXECUTION.

1. The Essentials of Execution.
2. Drawing and Writing.
3. Sight and Touch.
4. Music.
5. Slant ..... 1. Standard.  
2. Elevation.  
3. Angle of Legibility.
6. Change of Style.
7. Speed.
8. Writing Field.
9. Writing Scale..... 1. Construction.  
2. Uses.
10. Definitions.
11. Classification of..... 1. Lower-case.  
2. Capitals.  
3. Numerals.
12. Manner of Execution. 1. Of Capitals.  
2. Of Lower-case.
13. The Word Method ... 1. Advantages.  
2. Combining Movements. 1. Simple.  
2. Compound.  
3. Rules for Combination.  
4. Rules for Slanting.
14. Execution of Figures.
15. Execution of Vertical Letters.
16. Exercises.

## CHAPTER V.

### EXECUTION.

#### THE ESSENTIALS OF EXECUTION.

**1. Normal Refraction of the Eye.** (1) "55 per cent to 60 per cent of school children have imperfect eyesight."

**2. Proper Position of** (1) eye, (2) body, (3) arms, (4) hands, (5) feet, etc.

**3. Good Pens**, penholders and paper.

(1.) The pen should be even on the point. (2.) The holder should be in proportion to the size of the hand. (3.) The paper should be smooth and of excellent quality.

**4. Proper Pen-Prehension and Poising.**

(1.) Trained muscles. (2.) Proper action to secure easy balance.

**5. Thorough Knowledge** of Resemblances and Differences: (1.) Points of agreement. (2.) Points of difference ascertained by proper study of analysis, synthesis, analogy, etc.

**6. Whole Arm Movement.** (1.) All parts understood, as to form. (2.) Correctly made. (3.) Correctly related when in combination.

7. **A Good Blackboard** of a blue black tint.
8. **Ink.** (1.) The ink should be black. (2.) The ink should flow readily.
9. **Proper Knowledge** of alignment, slant, spacing, shading, etc.

**Drawing and Writing** are closely related so that a knowledge of one helps to a knowledge of the other. The primary principles are identical.

**Sight and Touch** are the senses chiefly used in gaining correct ideas of penmanship. Of the two sight is greater in importance, revealing form, size, situation and color. Nevertheless all of the five senses are essential to its completeness.

**Music.**—The relations of music to penmanship are intimate. Slant corresponds to pitch, speed to time, size to volume, style to expression, shade to accent and quality to tone.

**Practice or Production** is reducing conceptions of the mind to visible language either by parts, in combination, or as a whole.

**The Degree of Slant.**—As there are 90 degrees in a Quadrant, the writing may be made to slant 90 degrees forward and 90 degrees backward or by varying the lines of slant between 90 degrees forward and 90 degrees backward (180 degrees), there may be made many different angles, placed by some at 700.

**The Degree of Standard Slant**, is 37 degrees from the perpendicular along the Base Line, and 30 de-

grees elevation for the curves above it, so that the angle of legibility is the difference between them which amounts to 23 degrees.

The Degree of Slant in Vertical Penmanship is 0, or nothing.

**To Change the Style** to any degree from the Standard—move the elbow away from the left side of the page without moving the hand rest, and the change from slant to vertical or any desired slant may be easily accomplished.

**Alignment** is placing letters, figures, words or other objects in line with each other, and therefore of great importance in using unruled paper.

**Speed**.—In writing 30 words per minute—ordinary hand—the pen will pass through the space of one rod, and in five and one-third hours through the space of one mile. To execute, each letter requires from three to seven strokes of the pen and at the rate of thirty words per minute, 28,000 curves may be executed in one hour. The different changes that can be made with the twenty-six letters are over one decillion in number! A number of which the mind can form no adequate conception.

**The Writing Field.** This is the sweep or forearm semi-circle. The writing field for adults averages  $1\frac{1}{2}$  by 10 inches. The writing field for children averages 1 by 8 inches.

**Variety of Style.** Variety of style results from changes from the standard. Running, Vertical and

Backwards are varieties of *Slant*. Round and Angular hands are varieties of *Form*. Large and small hands are varieties in *Size*. Small writing can be written faster than large.

**Writing Scale.** Six lines and five enclosed spaces complete the writing scale for *lengths*, and if vertical lines be drawn parallel to the perpendicular so as to divide the spaces into rectangles three-fourths as wide as high ( $3 \times 4$ ), the scale will be complete for both length and width. The diagonals of the rectangles thus formed ( $3 \times 4$ ), will be a slant of 37 degrees forward from the perpendicular for *strokes*, 30 degrees for *curves*, and 20 degrees for *combining*.

**Uses of the Scale.**—To regulate length, width, slant and spacing.

**The Size of Writing** depends upon the given dimensions between the lines of the scale when the relation of three to four is maintained. “Large,” “medium,” or “small” hand may be thus constructed.

**Guide Lines.** While many excellent teachers favor guide lines it is to be remembered that each person's individuality shows forth in his *own* handwriting. This individuality should not be repressed by any line save the line of arrangement as ordinarily ruled on paper when it is manufactured; and indeed this may well be dispensed with after a careful study of position and alignment.

## MANNER OF EXECUTION.

**Analogy** is the similarity or relation of elements or parts.

**Analogous Letters** have parts in common.

**Analogue** is the part common to a group of letters.

**Polygram** is a figure consisting of many strokes or lines.

**The Identity** of a letter is preserved by its analogue or type.

**The Particulars** of a letter are the parts peculiar to itself.

**The Use of Polygrams** is to show the resemblance of letters by means of their analogues and particulars. By their use the lower-case and capitals may each be woven into three classes and the numerals into four classes, as follows :

## LOWER CASE LETTERS.

**Class I.** The number of letters is nine.

The Analogue is . . . . .

The polygrams are (1) i u w, (2) i e c, (3) i r s, (4) i t p.

**Class II.** The number of letters is eight.

The Analogue is . . . . .

The polygrams are (1) r, v, x, (2) n, m, (3) o, a, d.

**Class III.** The number of letters is eleven.

The Analogue is . . . . .

The polygrams are (1) l, b, (2) h, k, (3) z, y, j, (4) f and long s.

#### CAPITAL LETTERS.

**Class I.** The number of letters is fifteen.

The Analogue is . . . . .

The polygrams are (1) T, F, (2) A, N, M, (3) H, K, (4) S, L, G, (5) P, B, R, (6) I, J.

**Class II.** The number of letters is four.

The Analogue is . . . . .

The polygrams are (1) O, E, C and D.

**Class III.** The number of letters is nine.

The Analogue is . . . . .

The polygrams are (1) M, N, (2) Z, X, Q, W, (3) Y, U, V.

#### NUMERALS.

**Class I.** 1 and 4.

**Class II.** 2, 3 and 5.

**Class III.** 6, 8 and \$.

**Class IV.** 7, 9 and 0.

**Remark:** In executing polygrams, form on and about the Analogue in very light strokes or dotted lines the letters belonging to each class.

#### CALISTHENICS.

Duly consider the whole organism. Give the eye special attention, avoid myopia by looking at far away object, cor-

rect all errors of refraction by proper glasses (see Chap. II). Practice direct exercise of the will power on the muscles in general. Practice chest expansion and throwing back the shoulders. Rotate the arms from the shoulder joint, securing all the movements as abduction, adduction, rotation, circumduction, pronation, supination, wave motions in the air. Flexing and extending the fingers and arms rapidly and rhythmically. Marching or writing to music or the tick of the metronome. Introduce speed contests. Be inventive. Observe proper hygienic forethought and care as regards food, air, light and *exercise*. Wake up the mind and the muscles and nerves, apply movement to form and help to command the body. Keep in mind the conditions which most effect good work, viz: temperature, stimuli, exercise, blood supply and connection with the higher nerve-centers. Nerve force is the normal stimulus.

#### THE EXECUTION OF CAPITAL LETTERS.

**Execution** is the formation of elements and their combinations to represent in visible language letters, figures, signs, etc.

**Movements.—Whole Arm and Finger Movements.**

**Muscular Action.—**In the execution of Capitals, pen *prehension*, and *poising*, are accomplished by the muscles of the forearm and hand, and occasionally a slight finger movement for the long strokes is allowable. The *act of moving the pen* is mainly performed by the muscles whose origin is about the arm, shoulder, and scapula.

a b c d e f g h i  
j k l m n o p q r  
s t u v w x y z

A B C D E F G H I

J K L M N O P Q R

S T U V W X Y Z

*A* Execute the capital stem shading on the stem oval. In a point at the top join the left curve and carry it to the base. Finish with the crossing mark.

*B* Form the letter P and continuing tie an oval extending a little below the base. Shade as in P.

*C* Make a loop two spaces long, shade crossing the first right curve, and finish with a small capital O (modified).

*D* Begin  $2\frac{1}{2}$  spaces high, make the stem and looping at the base finish with a large oval touching the base and extending three spaces high, shading on the finishing curve.

*E* Execute a left curve (shade on the first curves of each part) continue over or through this, tie, and finish with a (modified) capital O.

*F* Execute a capital fold, cross the stem, finish with a straight mark, raise the pen, place the cap, (see T) shade on the stem Oval.

*G* Form a loop, turn, right curve, point and finish with the stem oval shading towards the base.

*H* Execute right curve joining in a point at the top of stem oval. Lift the pen, begin high (3 spaces) and make the long left curve and finish with the crossing mark. The shade is on the stem oval.

*I*

Join the capital fold and stem oval, continuous curve, shading on the stem oval.

*J*

Join the capital fold and loop, shade on the loop and extend it two spaces below the base line.

*K*

Execute the first portion of H, lift the pen, begin three spaces high and make the two compound curves tying them to the stem oval at right angles. Shade as in H, on the stem oval.

*L*

Execute S, changing the last left curve into a horizontal compound curve forming a horizontal loop. Shade on the lower part of the first compound curve.

*M*

Execute N, carrying its last left curve three spaces high and finishing with a left curve. The shade is placed on the stem oval.

*N*

Make A, omitting the crossing mark. Join a left curve by a very narrow turn on the base line. The shade is on the stem oval.

*O*

Execute an oval, shading on the first curve, the height being one space more than the width and the second and third curves being equal the distance between them being usually two-fifths space.

*P*

Execute the compound curve (stem), continue with a broad turn on the base to crossing the stem at the top and recrossing it at its middle. The last portion of the compound curve receives the shade.

*Q* Execute a capital fold and, changing the direction at every point, a horizontal compound curve forming a horizontal loop. The shade is on the fold.

*R* Tie a compound curve extending to the base to P, shading on the last part of the compound curve.

*S* Join a modified capital stem three spaces high to a right curve by a turn—shading on the stem oval.

*T* Execute the capital stem, lift the pen and place the cap one-half of a space above and to the left of it continuing to the right in a horizontal compound curve two and a half spaces long.

*U* Execute a capital fold and turning at the base a right curve to which join in a point the extended hook. Shade on the folds.

*V* Execute a capital fold joining by a turn on the base a compound curve. Shade on the fold.

*W* Execute the capital fold, point, ascend in a right curve, point, descend in a left curve to the base, turn *very* short and ascend in a left curve. Shade on the fold.

*X* Execute a capital fold, raise the pen, form a left curve or an inverted fold touching the first fold in the center of the right curve. Shade on the first fold.



Join to the capital fold by a turn and right curve, the extended inverted loop. Shade on the fold.



Tie to the capital fold by a little larger loop than ordinary in other situations, the inverted modified loop. Shade on the fold.

#### THE EXECUTION OF THE SMALL LETTERS OR LOWER-CASE.

**Movements:**—Whole-arm and finger movements. All of the small letters are executed in full without raising the pen except i j t and x.



Execute a modified *pointed* oval to which join the hook.



Form the loop and finish as in w.



Execute a right curve two-thirds space long, make a very short straight line downward, and turning over this, finish with the hook (modified).



The same as a, continuing one space above the head line and finishing with the extended hook.



Make a right curve and turning short at the top finish with the hook (modified).



Execute the loop and descending form the fold.



Join the inverted loop to the modified pointed oval.



Join the double hook to the loop.



Execute a right curve joining thereto in a point the hook. Raise the pen and place the dot one space above.



Join the inverted loop to a right curve. Raise the pen and place the dot one space above.



Make the loop; ascend to a little above where the line crosses in forming the loop, turn, tie, and finish with a hook (modified).



Join a right curve by a turn to the loop.



Execute two inverted hooks, and join thereto the double hook.



Execute one inverted hook, and join thereto the double hook.



Make the oval and finish with horizontal right curve.



Join to a right curve one and one-half spaces high, the folded stem, reverse oval and right curve.



Join the folded stem to the modified pointed oval.

*v* Execute a right curve to one and one-fourth spaces high, dot, make *short*, compound curve down and to the right finishing with the hook.

*s* Execute a diminutive stem oval, dot on the first right curve one-fourth space above the base, and retrace from the dot with a right curve.

*t* Execute a right curve, finishing with the extended hook. Cross mark.

*u* Execute double ii without any dots. Or join two hooks to a right curve.

*v* Execute the double hook contracting the opening at the top to two-thirds of a space so as to finish as in w.

*w* Execute a right curve and two hooks contracting the second hook two-thirds at the top, and finish with a dot and horizontal right curve.

*x* Execute the double hook. Raise the pen and cross the straight line of the double hook with the crossing mark on connective slant.

*y* Join the inverted loop to the double hook.

*z* Tie the inverted loop to a diminutive capital fold. (Or modified inverted hook.) Or, inverse semi angle, shoulder, and modified loop.

**REMARK:**—Single letter practice will not teach all there is to be known about letters in penmanship. Only when practiced *in words* can they be fully learned and understood.

A B C D E F G H I

J K L M N O P Q R

S T U V W X Y Z

a b c d e f g h v

g k l m n o p q r

s t u v w x y z

## THE NEW METHOD.

**The Word Method** also called "Thought Method" and "Language Method" consists in executing whole words at the outstart or beginning always discussing the letters in combination.

**Connecting or Joining Lines** are never fully learned and understood except when they are practiced in words.

**The Combining Movements** are simple and compound. The simple combining movement is executed in three different directions, either horizontal, obliquely upward or obliquely downward. The compound combining movement is made in two directions, either horizontal or obliquely upward.

## RULES FOR COMBINATION.

**RULE 1.** Join the finishing curve of each letter to the beginning curve of the next without raising the pen.

**RULE 2.** Letters ending and beginning with similar curves as i, u, n, etc., are joined by the simple combining movement.

**RULE 3.** Letters ending and beginning with dissimilar curves as na, em, in, etc., are joined by the compound combining movement.

**RULE 4.** Letters ending at the top are connected to the following letters by the horizontal combining movement as wo, vi, ba, etc.

RULE 5. A letter which ends at the top is joined to e, c and s at right angles to the slant of the letter to the middle of the space, as oe, os, ws, etc.

RULE 6. Twenty degrees from the horizontal is the usual slant of the upward combining curves. As parts of *letters* are best shown in letters themselves, so the parts of *words* including turns, points, slant, semi-angles etc., are best shown in words themselves, and especially the beginning and ending lines of letters related.

#### RULES FOR SLANTING.

RULE 1. The slant must be uniform throughout the page.

RULE 2. All lines must be parallel to all other lines of the same kind.

RULE 3. The downward strokes must slant thirty-seven degrees.

RULE 4. The upward combining curve should slant twenty degrees above the horizontal.

RULE 5. The slant (elevation) of up strokes should be thirty degrees above the line of arrangement.

RULE 6. Loop letters and capitals correspond in slant with small letters and should be thirty-seven degrees to the right of the perpendicular.

Remark: Slant is measured on a straight line drawn through the extreme points of curves and capitals and through the direction of the strokes of small letters.

## THE EXECUTION OF FIGURES.

Movements: Whole Arm and Finger movements. All of the figures are executed without raising the pen except 4 and 5.

- 1 Execute a straight line on the regular slant shading at the bottom.
- 2 Make a modified Q shading on the second right curve.
- 3 Execute a diminutive reversed E shading on the right side of the oval.
- 4 Execute a right curve with downward stroke joining thereto in a point a horizontal curve. Raise the pen and cross the latter with a slightly curved line on the regular slant. Shade at the top of the first downward stroke.
- 5 Execute a line slightly curved to the right one-half space long, tie, and finish with an oval. Raise the pen, go to the starting point and make a horizontal right curve one space long. Shade on the right side of the oval.
- 6 Make a straight line one space long and finish with a diminutive or modified capital O.
- 7 At a point one-half space above the head line make a straight line one-fourth space long joining to it a horizontal compound curve; tie; descend in a left curve to the base and finish with a straight

line three-fourths of a space long below the base line, and place the shade below the base.

8 Execute a compound curve shading on its lower portion, and turning, cross the same in a left curve at, or a little below, the head line.

9 Join a straight line to the oval (modified). Shade the oval and also the straight line below the base.

0 Execute an oval one space high and one-half space wide, and shade on the left side.

#### VERTICAL WRITING.

[To save repetition reference is made to the chapter on "Analysis" and "Synthesis."]

The execution is almost identical except the letters do not have any slant.

We present the following script vertical letters because of their simplicity and their near approach to print. We have most excellent penmen who make no appreciable difference except to execute the letters vertically instead of on the regular slant. If the accompanying style of vertical hand suits the tastes of the teacher and class, directions for their execution may be given accordingly. In this style the capitals are twice the height of small body letters and the same length as stem and loop letters.

[Consult Chapter III.]

## CAUTIONS.

1. Do not fail to observe a proper position of the eye, body, arms, hands and feet.
2. Do not fail to secure entire ease of the whole body.
3. Have a care to all the essentials of execution.
4. Remember that conceptions of the mind must precede visible execution. Have good ideals.
5. Avoid all excitement when attempting to execute any form.
6. Do not be governed by guide lines entirely. Practice alignment without visible lines.
7. Do not repress your individuality too much; let it show itself.
8. Never use heavy strokes in executing polygrams.
9. Do not fail to keep in mind the conditions effecting good work.
10. Let work and rest alternate in quick succession.
11. Never become discouraged; remember the direct exercise of the *will power* on the muscles.

## EXERCISES.

1. Write ten lines on the "Essentials of Execution."
2. Write five lines on the "Relations of Music to Penmanship."
3. Write ten lines taking for your subject "The Writing Scale."

4. Classify "Stem," "Oval," "Loop" and "Short" letters.
5. Write a short sketch on "Calisthenics."
6. Write the manner in which the first six letters (1) capitals, (2) lower case should be executed and execute the same.
7. Write a few lines on the "Word Method."
8. Write four rules for combining.
9. Write four rules for slanting.
10. State in writing how you execute "8," "9" and "0" and execute the same.
11. Discuss briefly in writing the resemblances and differences in the manner of execution of the letters of any two systems you may choose.
12. Execute (1) the capitals, (2) the lower case in oblique or standard slant.
13. Execute (1) the capitals, (2) the lower case in vertical hand.

#### EXAMINATION QUESTIONS.

1. Name nine essentials of execution.
2. What per cent of pupils have imperfect eyesight?
3. Give proper position of (1) eye, (2) body, (3) hands, (4) feet, (5) arms.
4. What is the most essential feature in (1) the pen, (2) holder, (3) paper?
5. What are the two main requisites in proper pen-prehension and poising?

6. How is comparison or points of resemblances and differences best ascertained?
7. What are the two main qualities of good ink?
8. In what respects are writing and drawing related?
9. What are the chief senses employed in penmanship?
10. Are all the senses essential to a completeness of the subject?
11. Give the corresponding relations of music to penmanship.
12. What is production?
13. Explain how different degrees of slant may be obtained.
14. What is the degree of standard slant?
15. What is the degree of elevation?
16. What is the angle of legibility?
17. What is the degree of slant in vertical hand?
18. How change the style to any degree?
19. What is alignment?
20. How many strokes of the pen is required to execute each letter?
21. Discuss probable rates of speed.
22. What is the writing field?
23. What is the average field for adults? Children?
24. How does variety of style result?
25. Give varieties of (1) slant, (2) form, (3) size.
26. Which can be written the faster, small or large hand?
27. How construct a writing scale?

28. What slant does the diagonal 3x4 give for (1) strokes, (2) curves, (3) combining?
29. Give four uses of the scale.
30. What does the size of writing depend on?
31. What is analogy? Analogous letters?
32. What is an analogue?
33. What is a polygram?
34. How is the identity of a letter preserved?
35. What are the particulars of a letter?
36. State the use of polygrams.
37. How many classes based on the analogues in (1) lower case, (2) capitals, (3) figures?
38. Name (1) the stem, (2) direct oval, (3) inverse oval capitals.
39. Name (1) the loop, (2) semi-extended, (3) short, lower case letters.
40. Give an example of an abbreviated letter.
41. Define execution.
42. Discuss the muscular action in the execution of capital letters.
- (43-68.) Give manner of executing each capital letter.
69. What movements are used mainly in execution?
70. How many of the small letters are executed in full without raising the pen? Ans. 22.
71. What four can not be executed without raising the pen?
72. Will single letter practice teach all there is to be known about letters in penmanship? Why?

73. What is the word method? Give synonyms.
74. How may connecting lines be fully understood?
75. Classify combining movements.
76. Name the ways in which (1) the simple combining movement is executed, (2) the compound combining movement.
77. Give five rules for combining.
78. What is the usual slant for upward combining curves?
79. How are the elements or parts of letters and words best shown?
80. Give rules for slanting.
81. Name the figures that can not be executed without raising the pen.
82. Give manner of execution of figures and lower-case letters.
83. Discuss the execution of vertical letters.

## CHAPTER VI.

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### SPACING AND SHADING.

- I. 1. Definitions.
- 2. Object of Spacing.
- 3. Measuring Units.
- 4. Rules for Spacing.
- 5. Automatic Act of Spacing.
- 6. The Basis of Spacing.
- 7. Spacing Determined..... { 1. In Standard Slant.  
2. In Vertical Hand.
- 8. Spacing in Length..... { 1. Of Capitals.  
2. Of Lower Case.
- II. 1. Definition.
- 2. Basis of Shading.
- 3. Uses of Shading.
- 4. Guide to Shading.
- 5. General Rules for Shading.
- 6. Cautions.
- 7. Exercises.
- 8. Review Questions.

## CHAPTER VI.

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### SPACING AND SHADING.

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#### I. SPACING.

**A Space** is the interval or distance between the main lines of letters or characters, and distinguishes one from the other.

**Spacing** is arranging spaces between letters, figures, words, etc.

**The Spacing of letters in words** depends upon the slant of the up-strokes.

**The object of spacing** is to secure legibility.

**The established rule is** — All letters must be one space apart.

**The measuring units** are the two lower-case letters i and u.

**The spaces** in height and width are determined by the measuring units.

**A space in width** is the distance between the straight lines of the small letter u.

**A space in height** is the height of the small letter i without the dot.

**The spacing of letters in words** depends upon the slant of the up-stroke. The more slant the more

space; the less slant the less space, but width depends upon the main lines between which it is measured.

**In conjoined or related letters** the following rules may be given:

1. Letters joined by upright curves are one and one-fourth to one and one-half spaces apart.
2. Letters joined at the top by horizontal simple or compound curves are one and one-fourth spaces apart.
3. Letters joined by slanting compound curves are one and one-half spaces apart.
4. Figures should be from one-half to one space apart.
5. The distance between 1's should be one space.
6. Words should be three spaces apart.
7. Sentences and paragraphs should be from four to six spaces apart.

**The Basis of Spacing** is the usage of the best authors and penmen. A theory of exact widths for single letters is impracticable as it varies owing to the style of hand written. Legibility is increased when the letters are well separated in a business or running hand.

**The Automatic Act of Spacing.** At first there is a deliberate act of volition and an expenditure of considerable thought which gradually decreases until but little if any thought of the intermediate spaces is given. Little by little the volitional ele-

ment ceases and the act goes on without the intervention of consciousness. The articulation or joining of the letters goes on, the hand gliding unconsciously from the form of one letter into the form of the next.

Although the measuring units "i" and "u" are regarded as the standard measure, nevertheless the rectangle 3x4 determines the standard width in standard slant and 4x4 the width in vertical penmanship, so that the size of any handwriting may be changed by changing the scale. [See Chapter V.]

**Capitals** are usually three spaces high, or in length.

**Lower-Case** are (1) body letters one space, (2) semi-extended, two spaces, (3) loop letters three spaces, (4) double extension, two spaces above and one below, (5) short extension, two spaces in length. Spaces in medium hand are usually one-eighth of an inch.

## II. SHADING.

**Shading** is executing some portions of a stroke denser or heavier than other parts.

**The Basis of Shading** is the use of it by the best penmen.

**The Use of Shade** is to please, to adorn, to beautify. However, without it greater rapidity can be attained, and manuscripts are more easily corrected. Therefore, it may well be dispensed with.

**Guide to Shading.**—Shade as found in observing standard capitals and lower case letters.

GENERAL RULES FOR SHADING.

1. The density is increased to, and decreased from, the center on curved lines, its direction being changed at every point.
2. Two equal shades never come together in the same letter.
3. A letter receives but one shade.
4. All downward strokes are denser than upward strokes.
5. Single and double hooks are shaded on the straight line.
6. All lower-case letters are shaded above the base.
7. The capitals are shaded on downward strokes in ovals, stem ovals, folds and stems.
8. Each figure receives but one shade.
9. Shade light rather than heavy.
10. Shade even as one shade compared to another on a page.

**REMARK:** Chapter V.—Manner of Execution tells where to shade each letter.

SHADING.

CAUTIONS.

1. Avoid having the spaces between the letters in a word unequal.
2. When legibility is sought place words more than three spaces apart rather than less.

3. Avoid excessive lengths in height of the capital letters; let them be less than three spaces rather than more.
4. Avoid long and short semi-extended letters in the same hand; let them be of the same height.
5. Avoid excessive lengths of the double extension letters.
6. Avoid varying the length of body letters in the same hand.
7. Avoid varying the width of letters in the same hand.
8. Make the loop letters less than three spaces rather than more.
9. Do not forget that the object of spacing is to secure legibility.

### SPACING.

### EXERCISES.

1. Write one thousand one hundred and eleven, properly spacing the 1's.
2. Write one million in figures so that the spaces between the 0's shall be equal.
3. Write a sentence of at least seven words, the spaces between which shall be equal.
4. Write four short sentences beginning each with a capital and placing after each a period with a view to having spaces between sentences equal.
5. Write a short letter of introduction, the main object of which shall be to illustrate proper spacing.  
[Chapter X.]

6. Write the superscription on an envelope properly spacing in all directions. [Chapter X.]
7. Write seven lines on "The Automatic Act of Spacing," with a view to being graded on proper spaces between letters, words and sentences.

#### REVIEW QUESTIONS.

1. What is a space? Its office?
2. What is spacing?
3. What does the spacing in words depend upon?
4. What is the object of spacing?
5. What is the established rule?
6. What letters are arbitrarily chosen as the "measuring units?"
7. How are height and width determined?
8. What is a space in width of any uniform hand?
9. What is a space in height of any uniform hand?
10. What does space and width of letters depend on in words?
11. Give the rule for letters joined by up curves.
12. Give the rule for figures.
13. How far should 1's be separated?
14. How far should words be separated?
15. How far should sentences be separated?
16. How far should paragraphs be separated?
17. What is the basis of spacing?
18. Is the theory of exact widths of single letters practicable? Why?

19. What style of pen is best for shaded work?
20. Explain the *automatism* or automatic act of spacing.
21. What are the sides of the rectangles (1) for standard slant, (2) for vertical hand in the scale?
22. How then may the size of any hand-writing be changed?
23. Give the length in spaces of (1) the capital letters, (2) lower case.
24. What is shading?
25. What is the basis of shading?
26. What are the uses of shading?
27. What arguments in favor of dispensing with shading altogether in penmanship?
28. What is the guide to shading?
29. Should equal shades ever come together in the same letter?
30. How are curves shaded?
31. How many shades should each letter, that is, shaded at all, receive?
32. How does the density of downward strokes compare with upward strokes?
33. Where are lower case letters shaded?
34. Where are capital letters shaded?
35. How are figures shaded?
36. What should be the general appearance of shade on the written page?

## CHAPTER VII.

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### PRACTICE AND DRAWING.

#### 1. Definitions.

2. Capitals . . . . . 1. Different Styles.  
2. Oblique.  
3. Vertical.

3. Drawing . . . . . 1. Philosophy of Drawing.  
2. Rules for Drawing.

#### 4. Illustrations.

#### 5. Tracing Method.

6. Suggestion. 1. Materials.

7. Map Drawing. . . . . 2. Coloring Materials.  
3. Necessary Processes.

#### 8. Illustrations.

#### 9. Review Questions.

## CHAPTER VII.

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### PRACTICE AND DRAWING.

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#### PRACTICE.

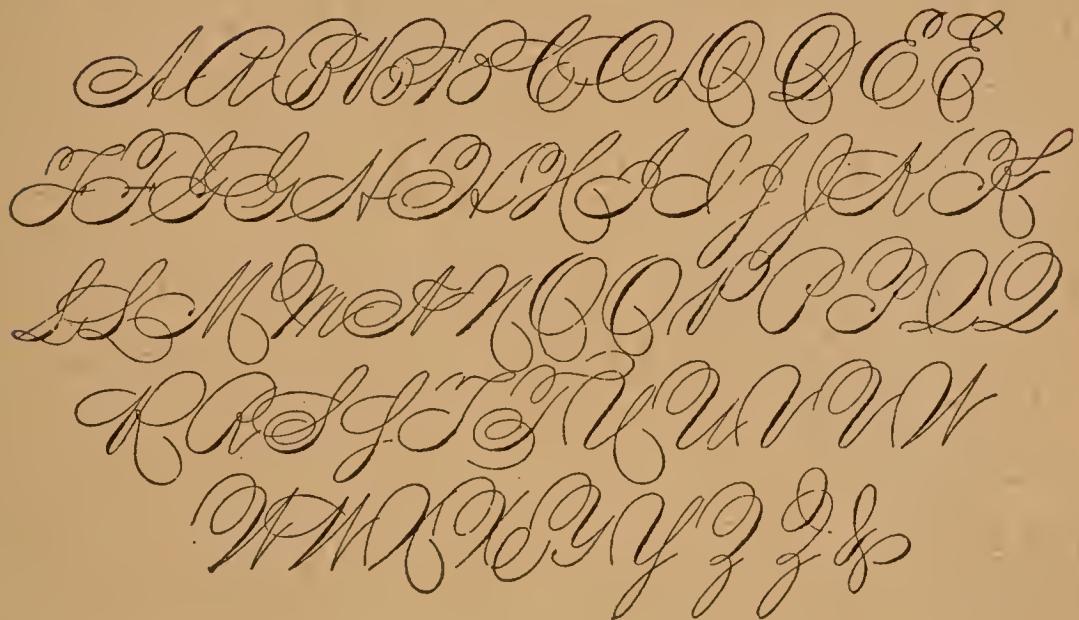
**Practice** consists in reducing conceptions of the mind to visible language by means of letters, words, signs, pictorial illustrations, etc., or, to be more exact, by means of the dot, straight line, right and left curves, because from these simple principles any form of which the human mind can conceive of may be executed.

Practice comprehends not only a critical analysis of a form already visible, but of the way and manner in which a form already observed in the mind shall be produced, which act is understood to be based upon a thorough understanding of the mechanism of the arm and hand and the principle governing the association of ideas.

**To the Teacher.**—Bring to the aid of the pupil all available helps possible to secure ease, freedom and uniformity of movement. Review movement, position, execution, analysis, etc., making sure the pupils are in possession of good ideals.

## GENERAL PRACTICE.

## 5. As to Variety.

A large, handwritten sample of the cursive script, showing all the letters from A to Z in a continuous, flowing sequence. The letters are written in a fluid, elegant hand, with varying line thicknesses and some decorative flourishes.

## The Lead Pencil.

In practice or drill the use of the lead pencil, a portion of the time, is to be allowed, since no particular angle is to be maintained between the point and the paper thus allowing rotation at pleasure and therefore less effort at poising, and as a result less fatigue; so that its use really serves as a rest notwithstanding the aim in the manner of execution remains the same. The pen may be resumed without danger of cramp.

6. As To Fancy.

A B C D E F G H  
I J K L M N P Q  
R S T B D F V W  
W X Y Z

7. Business Capitals.

A B C D E F G H I  
J K L M N O O D R  
S T U V W X Y Z

8. Free Movement.

A B C D E F G H I  
K L M N O P Q R  
S T U V W X Y Z

## CHART OF THE NATURAL SYSTEM OF VERTICAL WRITING

### STANDARD FORMS.

A B C D E F G H I J K L M  
n O P Q R S T U V W X Y Z

### OPTIONAL FORMS.

a b D F G G M N O P Q R  
s T V W Y y

### STANDARD FORMS.

a b c d e f f s h i j k l m n  
o p q r r s t u v w x y z

### OPTIONAL FORMS.

f g h k k p q y

### FIGURES AND SIGNS.

1 2 3 4 5 6 7 8 9 0 ½ \$ % & @ &

## GENERAL PRACTICE.

## 9. Free Movement: Whole Arm.



## 10. Old English.

A B C D E F G H I K L M  
 N O P Q R S T U W X Y Z.  
 a b c d e f g h i j k l m n o p q r s t u v w x y z.

*German Text.*

A B C D E F G H I K L M  
 N O P Q R S T U W X Y Z.

*Square Text.*

A B C D E F G H J Z K L M,  
 a b c d e f f g h i j k l m n o p q r s t u v w x y z  
 N O P Q R S T V W X Y Z.

*Italian Hand.*

a b c d e f f g h i j k l m n o p q r s f o t u v w x y z.  
 A B C D E F G H I J K L M M N  
 N O P Q R S T U V W W X Y Z Z.

*English hand.*

A a B b C c D d E e F f G g H h J i J j K k L l M m N n O o  
 P p Q q R r S s T t U u V v W w X x Y y Z z.



## II. DRAWING.

**Drawing** is a delineation or representation of the appearance or figure of an object on a plain surface, by means of lines and shades.

**Explain the Terms.**—Line, straight, curved, angle, obtuse, acute, parallel, square, rectangle, vertical, horizontal, oval, ellipse, point, turn, shade, expression, outline zigzag, etc.

**Philosophy of Drawing.**—\* Drawing is a science and an art, and its soul is beauty, and beauty of design as all other beauty rests on association. Prop-

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\*Publishers "American Series of Drawing Books."

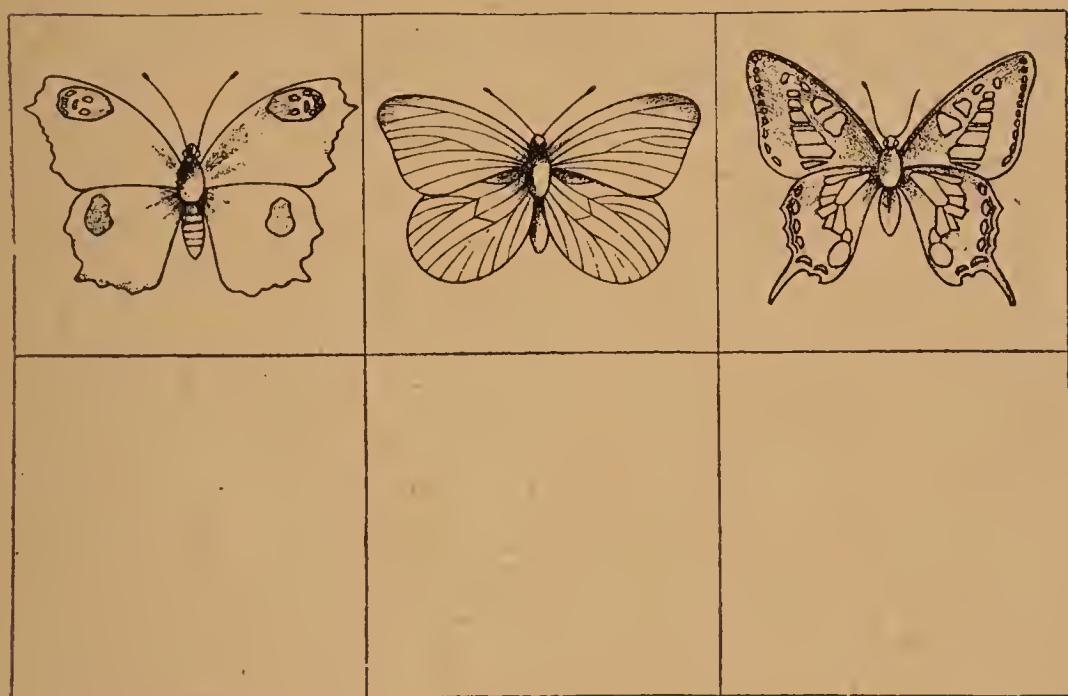
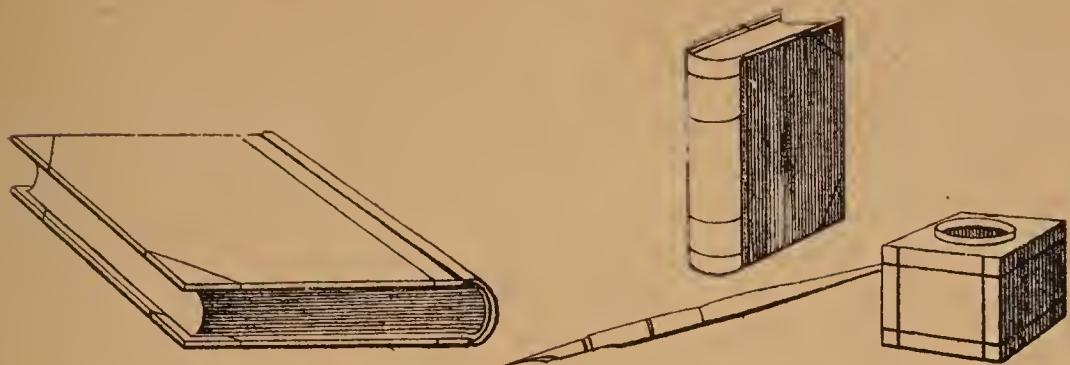
erly conducted instruction in drawing is a far-reaching means of æsthetical education; but it must be properly conducted. From the very beginning, the ideas of purity, neatness, proportion, regularity, elegance, completeness, finish, strength, bloom, health, refinement, etc., must be associable and actually associated with everything connected with this occupation. Clean, strong paper, a fine grade of pencils, scrupulously clean hands, models consisting or composed of regular straight or curved lines, of pleasing, well proportioned figures, or representing captivating objects, stars, leaves, flowers, animals, romantic ruins, brooks and bridges and ships—all this will work together for cultivating a sense of propriety and order, an eye for regularity and harmony, a refined taste for that which is truly beautiful, engendering pure and chaste and wholesome associations and again suggested by such association.

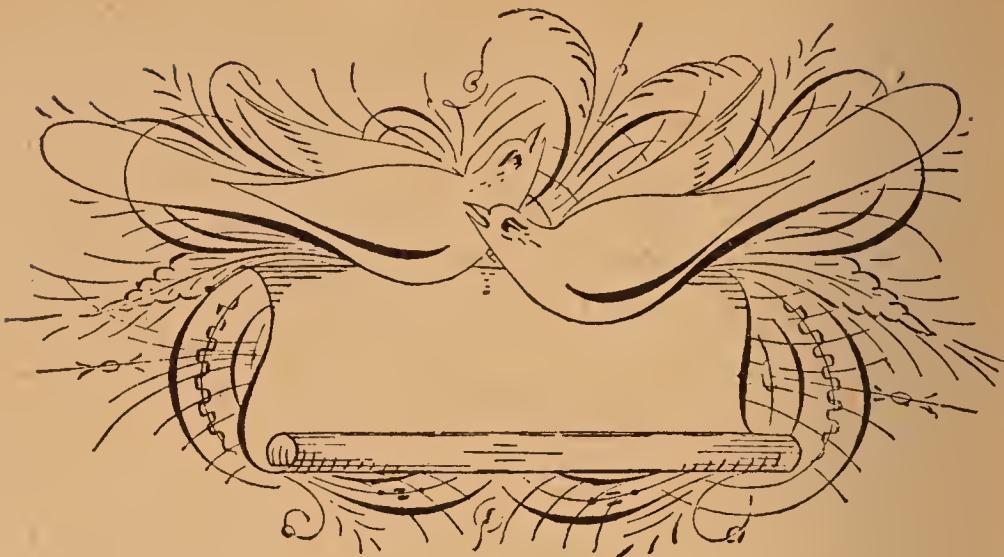
\*RULES FOR DRAWING.

1. Maintain the position for writing.
2. Do not incline the head forward or sideways.
3. Place the drawing book parallel to the sides of the desk. Do not shift it about.
4. Use a good lead pencil well pointed.
5. Never wet the pencil.
6. Draw the lines as faint as possible at first; they can always be made heavier.

7. When drawing rest your hand on a clean sheet of paper.
8. Do not use an eraser too frequently as it ruins the drawing paper.
9. Draw vertical lines downwards.
10. Draw horizontal lines from left to right.
11. Do not press hard on the pencil as heavy marks are hard to erase and show on the next page.
12. Begin the drawing at the left and work down to the lower right side.



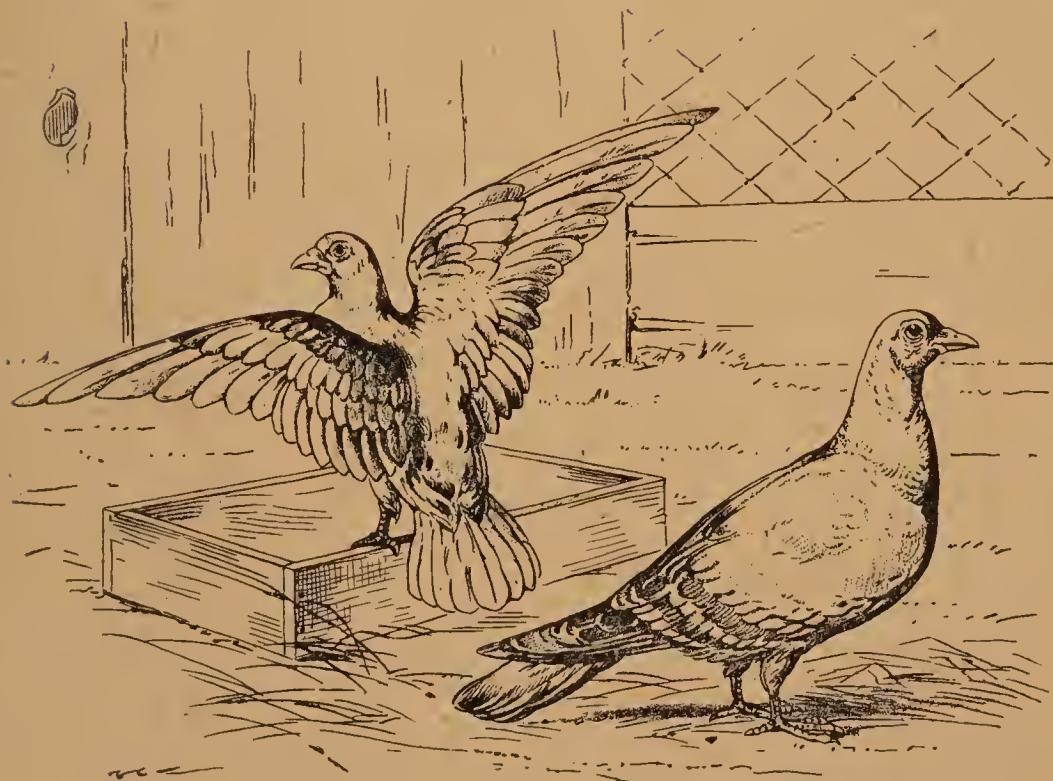


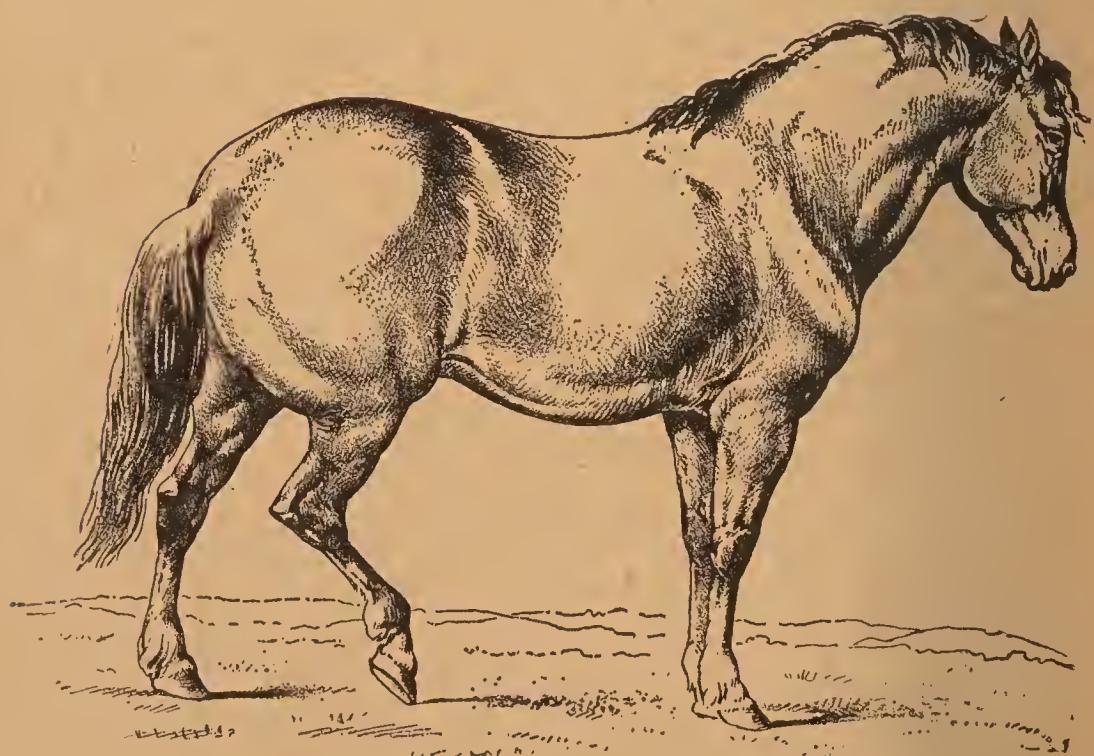


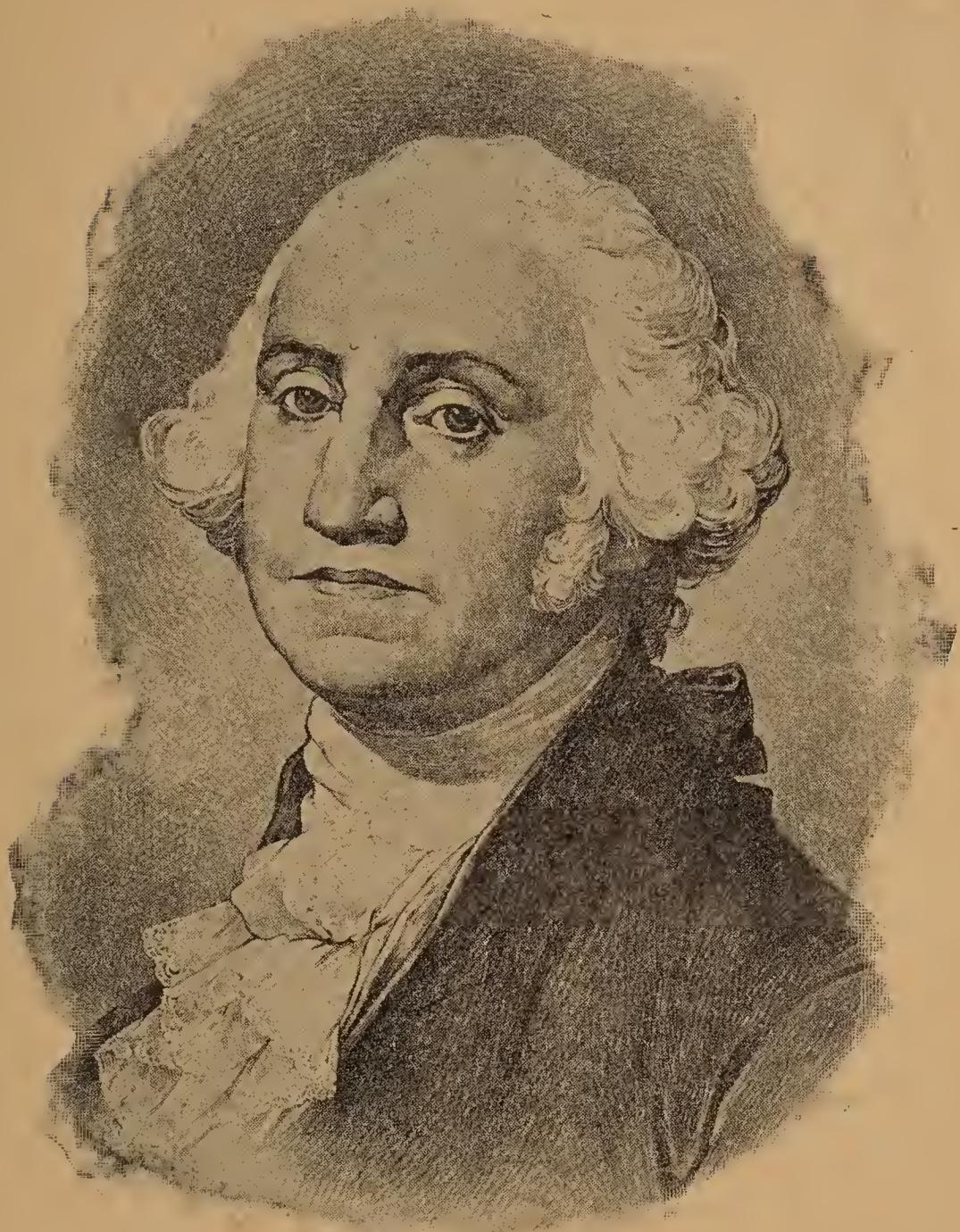
#### THE TRACING METHOD.

This method consists (1) in placing transparent paper over the letter, map or picture of which a representation is desired and tracing the outlines, etc., preferably with a lead pencil, on the tracing paper. (2) Turn the tracing paper over and black the other side with the pencil. (3) On the surface where the representation is to remain permanent lay the tracing paper, black side down. (4) Trace the outline over again and remove the tracing paper. A perfect copy appears on the drawing paper. (5) Finish over the penciled outlines with inked pen. (6) After the ink becomes dry erase all marks of the lead pencil. The drawing in ink will remain permanent.

This method is available in securing unique and difficult outlines before sufficient adeptness has been attained to secure them otherwise and is sometimes seen to develop important characteristics of the caricaturist.



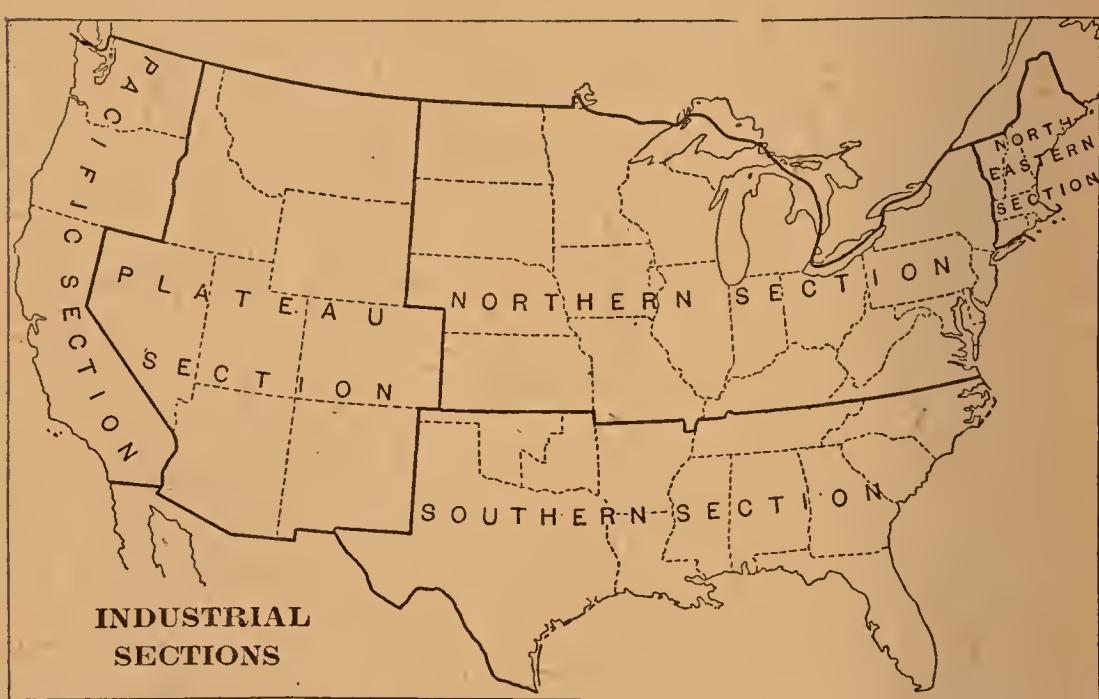




TO THE TEACHER. Insisting upon careful work only during the few minutes [20 to 40 minutes] of the writing lesson and at other times paying no attention to written work, you need not expect the best, or even good, results. All written work must receive attention so that pupils will form the habit of doing their general work in writing or drawing circumspectly and well.

## MAP DRAWING.

**Map Drawing** is very useful practice; not only does it fix in the mind form, location, extent and relative position of objects, but cultivates habits of tastes, appreciation of the beautiful in art and tends to lead to beautiful forms and designs aside from the geographical.



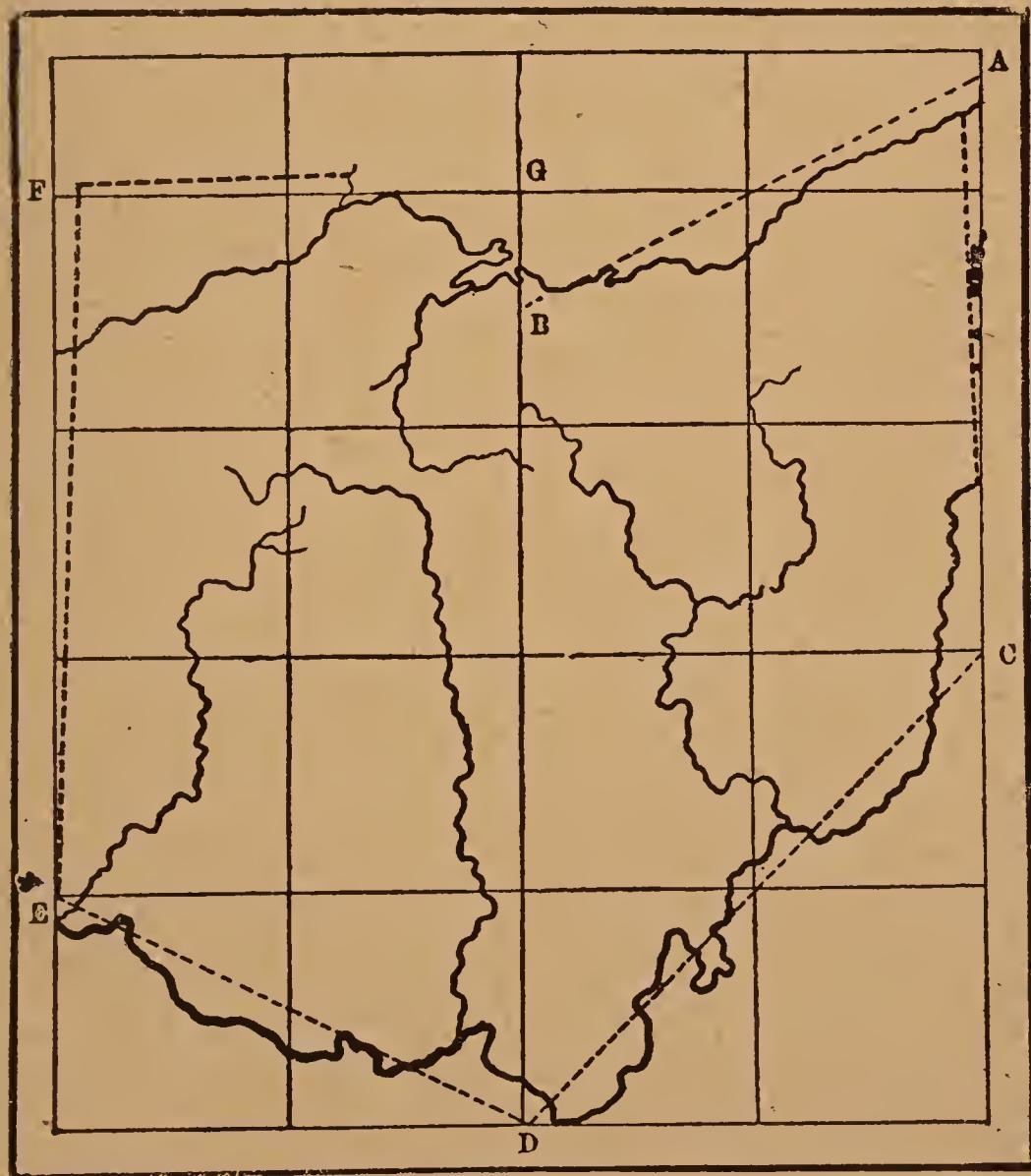
**Materials.**—(1) Steel pens, (2) lead pencils, (3) pair of dividers, (4) eraser or piece of India rubber, (5) good black ink, (6) a scale with the inch divided into thirty parts, (7) strong, firm drawing paper.

**Coloring Materials.**—(1) A cake of Prussian blue, (2) of crimson lake, red, (3) of gamboge, yellow, (4) of burnt sienna, light brown, (5) two or three small camel hair brushes.

## OHIO.

Draw sixteen squares, as in the figure. A and B are middle points in the sides of squares, and the line connecting them indicates the southern coast of Lake Erie. The lines CD and DE indicate the southern boundary, EF the western boundary, and FG a part of the northern boundary.

Upon squares and construction lines similar to those given below, maps of the different states or groups of states, as well as of the different countries of the world, may easily be drawn.



**Necessary Processes** to execute a perfect map.—(1) Draw the projection, (2) draw the outline, rivers, mountains and boundaries in pencil, (3) go over the pencilings in ink, (4) rub out the pencil marks, (5) locate the principal towns. If a colored map is to be drawn, lay on the colors before putting ink on the pencil marks.

**The Tracing Process** is to be commended for beginners in map drawing.

#### REVIEW QUESTIONS.

1. What is practice?
2. Of what elements or principles are all forms made up?
3. What does practice comprehend?
4. Why may the use of the lead pencil be allowed in practice a portion of the time?
5. Practice on all capitals herewith presented regarding the same as "exercises in practice," both in standard slant and vertical hand.
6. What is drawing?
7. What is the philosophy of drawing?
8. Give twelve rules for drawing.

**REMARK.**—The Penmanship class should be referred to geography, Marcator's projection, conical projection, etc., discussed, and practice as a part of the science and art of penmanship the drawing of the different maps of the world as circumstances permit, and thus perhaps lead the way to the Fine Arts, Design, Crayon, Portraiture in black and white, etc.

9. Practice on all illustrations herewith given as "exercises in drawing."

10. How broaden our views in practice and drawing and become more proficient?

*Ans.* By being willing to go out on all lines of investigation and bringing to our aid all available aids and helps from the best authorities.

11. Explain the tracing method.

12. Of what benefit is map drawing to the student in penmanship?

13. Name the materials needed.

14. Name the coloring materials.

15. Give the necessary processes to execute a perfect map.

16. May the penmanship class refer to the geography for further knowledge?

*Ans.* Yes. Refer to the geography or anything that will lead to clearer ideals of the subject in hand.

17. Draw a map of Ohio; Indiana; United States.

## CHAPTER VIII.

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### CAPITALIZATION, ITALICS, ABBREVIATIONS.

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1. **Capitalization.** {
  1. Definition.
  2. Rules—1 to 21.
2. **Italics.** {
  1. Definition.
  2. Uses—1 to 9.
3. **Abbreviations.** {
  1. Objects.
  2. Exercises.
4. **Exercises.**
5. **Review Questions.**

## CHAPTER VIII.

### CAPITALIZATION, ITALICIZATION AND ABBREVIATION.

#### I. CAPITALIZATION.—RULES.

**Capitalization** is the use of capitals in writing or in printing.

Begin with a capital.

1. The first word of a sentence, or the first word after a full pause; as, The clock ticks. The boy writes.

2. The first word in every line of poetry; as,

Sweet day! so cool, so calm, so bright,  
The bridal of the earth and sky ;  
The dews shall weep thy fall tonight ;  
For thou must die.—*Herbert*.

3. Proper names of persons, places, months and days; as, Harry, Chicago, June, Friday.

4. Titles of honor or distinction; as, George the Third; Dr. Johnson; Gen. Grant.

5. The names of things personified; as, Come, gentle Spring!

6. The names of particular objects; as, The Falls, The City of Magnificent Distances, The Cape of Good Hope.

7. The first word of a direct quotation; as, Our teacher said, “ Be frank, honest, and truthful.”

8. Words of special importance ; as, The Tariff; the Commissioner of Pensions.
9. All appellations of the Deity ; as, God ; Divine Providence ; the Son ; our Lord.
10. Generic names in natural history ; as, Fringilla Leo.
11. Words derived from proper names ; as, Germanic, Smithsonian.
12. Names denoting race or nation ; as, The Canadians ; the Spaniards ; the Anglo-Saxons.
13. Each item of an enumeration of particulars, in paragraphs ; as, In Ohio it is six per cent ; In N. Y., it is seven per cent.
14. The first word after an introductory word or clause ; as, *Resolved*, That we donate four dollars, etc.
15. The words I and O ; as I, Abraham Lincoln ; Friendship, O friendship !
16. Names of public institutions, when used in a specific sense ; as, The Ohio Penitentiary.
17. All proper nouns ; as, John, Mary, Boston.
18. Each article mentioned in accounts.
19. Titles of office when they occur in rules and reports of societies ; as, Treasurer, Secretary.
20. The words north, south, east, and west referring to sections of a country ; as, In the East they have war ; in the North and South-West, peace.
21. Pronouns referring to names of the Deity, where their antecedents are understood ; as " *His*

rod, and *His* staff, they comfort me," "I will fear no evil for *Thou* art with me."

"Thou art!—directing, guiding all,—Thou art!"

"Direct my understanding, then, to Thee."

## II. ITALICIZATION.

**Italic**, is a word applied especially to a kind of type in which the letters do not stand upright but slant towards the right, so-called because dedicated to the States of Italy by their inventor, Aldus Manutius, A. D. 1500.

*This clause is printed in italics.*

**Uses of Italics**—To distinguish words for emphasis, importance, antithesis, etc.

1. The name of authors, following selections from their writings; as, "My pride fell with my fortunes."  
— *Shakespeare*.

2. Their use in the Bible shows words inserted by the translators. They are not to be emphasized.

3. Emphatic words or expressions are usually printed in italics.

4. Names of parties in a dialogue, or the names of newspapers, books, vessels, etc., are usually printed in italics; as, *The Cincinnati Enquirer*, *Two Souls under X. Ray*, *The Maine*.

(*George*) Good morning, Emma.

(*Emma*) Good morning, sir.

5. In a series forming a climax, the first is put in italics, the second in small capitals, the third in capitals; as, I will not agree to it; *never*, NEVER, NEVER!

6. In chapters and poems the first word is generally printed in small capitals.

7. One line placed under a word denotes italics; two lines, small capitals; three lines, capitals; four lines, italicized capitals.

8. Words borrowed from foreign languages should be printed in italics; as, *Each symptom per se.*

9. Names of important personages are frequently printed in small capitals.

10. Full-faced types are used in many works for distinction; such is the case in this work.

#### ABBREVIATIONS.

[*After learning the ABBREVIATIONS, pupils will be required to construct and write sentences, appropriately using them.*]

A. A. S. Fellow of the American Academy.  
A. B. Bachelor of Arts.  
Abp. Archbishop.  
A. C. or B. C. Before Christ.  
Acct. Account.  
A. D. In the year of our Lord.  
Æt. Aged.  
Ala. Alabama.  
Alex. Alexander.  
A. M. Master of Arts; Before noon; In the year of the world.  
A. or Am. American.  
Anon. Anonymous.  
Apr. April.  
Ark. Arkansas.  
Att. Attorney.  
Aug. August.  
Bbl. Barrel.  
B. C. Before Christ.  
B. D. Bachelor of Divinity.  
Bp. Bishop.  
B. V. Blessed Virgin.

C. or Cent. A hundred.  
Cal. California; Calendar.  
Capt. Captain.  
Cash. Cashier.  
C. E. Civil Engineer.  
C. J. Chief Justice.  
Co. Company; County.  
Col. Colonel; Colossians.  
Coll. College.  
Cong. Congress.  
Conn. or Ct. Connecticut.  
Const. Constable.  
Cr. Credit or Creditor.  
Cts. Cents.  
Cwt. A hundred weight.  
D. C. District of Columbia.  
D. D. Doctor of Divinity.  
Dea. Deacon.  
Dec. December.  
Del. Delaware; Delegate.  
Dist. District.  
Do. Ditto; the same.  
\$ or Dolls. Dollars.  
Doz. Dozen.  
Dr. Debtor; Doctor.

E. East ; Earl.	Jan. January.
Ed. Edition ; Editor.	Jas. James.
E. G. For Example.	Jno. John.
Eng. England ; English.	Jos. Joseph.
Esq. Esquire.	Jul. July.
Etc. And so forth.	J. P. Justice of the Peace.
Exc. Excellency.	Jr. or Jun. Junior.
Et. al. And others.	Kan. Kansas.
Feb. February.	Ky. Kentucky.
Fig. Figure.	L. l. £. A pound sterling.
Flor. or Fa. Florida.	La. Louisiana.
Fr. France ; Francis ; French.	Lat. Latin ; Latitude.
Fri. Friday.	Legis. Legislature.
F. R. S. Fellow of the Royal Society.	Lieut. Lieutenant.
F. S. A. Fellow of the Society of Arts.	LL. D. Doctor of Laws.
Ga. Georgia.	Lon. Longitude.
Gen. General.	Lou. or La. Louisiana.
Gent. Gentleman.	L. S. Place of the Seal.
Gtt. Drops.	M. Marquis ; Monsieur ; Mile ; Morning ; Noon ; Thousand.
Gov. Governor.	Maj. Major.
H. B. M. His or Her Britannic Majesty.	Mar. March.
Hhd. Hogshead.	Mass. Massachusetts.
Hon. Honorable.	Math. Mathematics.
H. R. House of Representatives.	M. C. Member of Congress.
H. S. S. Fellow of the Historical Society.	M. D. Doctor of Medicine.
Hund. Hundred.	Md. Maryland.
Hyd. Hydrostatics.	Me. Maine.
Ib. or Ibid. In the same place.	Messrs. Gentlemen ; Sirs.
Id. The same.	Mich. Michigan.
I. e. That is.	Minn. Minnesota.
I. H. S. Jesus the Saviour of men.	Miss. or Mi. Mississippi.
Ill. Illinois.	Mo. Missouri ; Month.
Incog. Unknown.	Mon. Monday.
Ind. Indiana.	M. P. Member of Parliament.
Inst. Instant—the present month.	Mr. Master or Mister.
Int. Interest.	Mrs. Mistress.
Io. Iowa.	MS. Manuscript.
It. Italian ; Italy.	Mt. Mount or Mountain.
J. Judge.	N. North ; Note ; Number.
	N. A. North America.
	N. B. Take Notice.
	N. C. North Carolina.
	N. E. North-East ; New England.

Neb.	Nebraska.	Q. V.	Which see; As much as you please.
Nev.	Nevada.	Rec. Sec.	Recording Secretary.
N. H.	New Hampshire.	Rep.	Representative; Republic.
N. J.	New Jersey.	Rev.	Revelations; Reverend.
N. M.	New Mexico.	R. I.	Rhode Island.
No.	Number.	Robt.	Robert.
N. O.	New Orleans.	R. R.	Railroad.
Nov.	November.	Rt. Hon.	Right Honorable.
N. S.	Nova Scotia; New Style.	Rt. Rev.	Right Reverend.
N. T.	New Testament.	R.	Take.
N. W.	North-West.	S.	Seconds; Shilling; Sign; South.
N. Y.	New York.	S. A.	South America.
O.	Ohio.	Sam.	Samuel.
Ob.	(Obiit.) Died.	Sat.	Saturday.
Obt.	Obedient.	S. C.	South Carolina.
Oct.	October.	Sc. or Sculp.	(Sculpsit.) He, or she, engraved it.
On. or Or.	Oregon.	S. E.	South-East.
O. S.	Old Style.	Sec.	Secretary.
O. T.	Old Testament.	Sen.	Senator; Senior.
Oz.	Ounce or Ounces.	Sig.	Signature.
Pa. or Penn.	Pennsylvania.	Ss.	Namely; Half.
Per or pr.	By the; as, per yard.	Sept.	September.
Per ct.	By the hundred.	Serj.	Serjeant.
Ph. D.	Doctor of Philosophy.	Sp.	Spain; Spanish.
P. M.	Post-Master; Afternoon.	Sr.	Senior.
P. O.	Post Office.	Sun.	Sunday.
Pres.	President.	S. S.	Sunday School.
Prof.	Professor.	S. W.	South-West.
Pro tem.	For the time being.	Tenn.	Tennessee.
Prox.	Next month.	Tex.	Texas.
P. S.	Postscript.	Thu.	Thursday.
Ps.	Psalms.	Tr.	Treasurer.
Pub.	Public; Publisher.	Tu.	Tuesday.
Pub. Doc.	Public Document.	Ult.	Last, or the last month.
Q.	Question; Queen.	U. S.	United States.
Q. L.	As much as you please.	U. S. A.	United States of America; United States Army.
Q. S.	A sufficient quantity.	U. S. M.	United States Mail.
Qt.	Quart; Quantity.		

U. S. M. A.	United States	W. West, or Week.
	Military Academy.	Wis. Wisconsin.
U. S. N.	United States	W. Va. West Virginia.
	Navy.	X. or Xt. Christ.
U. S. S.	United States	Xm. or Xmas. Christmas.
	Senate.	Y. Year.
V.	( <i>Vide.</i> ) See ; Verse.	Yd. or yd. Yard.
Va.	Virginia.	Yds. or yds. Yards.
Viz.	Namely ; To-wit.	You'd. You would, or you had.
Vol. or vol.	Volume.	Zool. Zoology.
V. P.	Vice-President.	&c. And so forth.
Vt.	Vermont.	

**Abbreviate** is to shorten; to make briefer.

**Abbreviation** is shortening or reducing by contraction and omission.

#### EXERCISES.

**Abbreviate** the following: Aged ; America ; United States of America ; General ; And Others ; Dollars ; Cents ; Postscript ; See ; Namely ; Signature ; United States Senate. [Exercises should be given frequently.]

**Expand** the following: N. Y.; S. A.; Rep ; Rev. ; &c. ; Prox. ; Ph. D.; M. D.; D. D.; LL. D.; Ult. ; Inst. ; P. O. [These may be extended indefinitely.]

**Capitalize** the following: (1) I saw an article written by Mr. John Kinnear of Cleveland Ohio. (2) We passed through St. Louis on our way to California to see my Uncle, Henry M. Mills. (3) My friend said, "Be honest and frank," etc., etc.

**To THE TEACHER:** The drill on the use of capitals and abbreviations should receive attention in the pupil's general work, aside from class work.

Construct and write sentences appropriately using the abbreviations.

REVIEW QUESTIONS.

1. What is Capitalization?
2. What is Rule First?
3. What is Rule Second?
4. Give *twelve* rules for the use of capitals.
5. What is the meaning of italic?
6. Why are italics so called?
7. Who invented italics? When?
8. Give *six* uses of italics.
9. What does one line placed under a word denote?
10. What does two lines placed under a word denote?
11. What does three lines placed under a word denote?
12. What does four lines placed under a word denote?
13. Define Abbreviate.
14. Define Abbreviation.
15. What are the uses of abbreviation?
16. Abbreviate the following: Ohio; North Carolina; County; United States; North America.

[Drill on abbreviating the names of all the States—writing same neatly and carefully.]

17. Expand La., Admr., i. e., e. g., &c., &c.

[Drill thoroughly varying the exercise owing to the wants of the pupil.]

## CHAPTER IX.

## PUNCTUATION.

<b>1. Definition and Uses.</b>	1. Rhetorical Points. 2. Referential Points. 3. Etymological Points. 4. Typical . . . . . (Lines)	1. Period.
		2. Interrogation Point.
		3. Exclamation Point.
		4. Colon.
<b>2. Divisions....</b>		5. Semicolon.
		6. Comma.
		7. Dash.
		8. Curves.
		9. Brackets.
<b>3. Exercises.</b>		10. Quotation Marks.
		1. Asterisk.
		2. Obelisk or Dagger.
		3. Dieresis or Double
		4. Parallels. [Dagger.]
<b>4. Review Questions.</b>		5. Section.
		6. Paragraph.
		7. Leaders.
		8. Index or Hand.
		9. Brace.
		10. Asterism.
		1. Apostrophe.
		2. Caret.
		3. Hyphen.
		4. Dieresis.
		5. Macron.
		6. Breve.
		7. Tilde.
		8. Grave Accent.
		9. Acute Accent.
		10. Circumflex Accent.
		11. Dot.
		12. Cedilla.
		13. Suspended Bar.
		1. <u>Italics.</u>
		2. <u>Small Capitals.</u>
		3. <u>Large Capitals.</u>
		4. <u>Italic Capitals.</u>

## CHAPTER IX.

### \* PUNCTUATION.

1. **Punctuation** is the use of certain characters to aid the reader in determining the thought of a writer, to mark degrees of separation between sentences and parts of sentences, and to indicate the pronunciation of words.

2. **Punctuation** is of four kinds; *Rhetorical*, *Referential*, *Etymological* and *Typical*.

3. **Rhetorical Punctuation** is that used to determine the structure of sentences.

#### 4. The Rhetorical Points:

The Period,	(.)
The Interrogation Point, (?)	
The Exclamation Point, (!)	
The Colon,	(:)
The Semicolon,	(;)
The Comma,	(,)
The Dash,	(—)
The Curves,	( )
The Brackets,	[ ]
Quotation Marks, (“ ”), (‘ ’).	

\* *The New Orthography.*

## THE PERIOD.

1. The period should be placed after every declarative and imperative sentence, when not connected in construction with what follows.

*Examples*—“No excellence without great labor.” Labor to excel.

2. The period should be placed after abbreviations; as; Mr., O., etc.

*Exceptions*—“@, 6th, etc.

3. The period should be placed before decimals and between the dollars and cents in U. S. money; as, .365, \$42.63.

4. The period should be placed after a heading; as,

## THE LION.

5. The period should be placed after letters used as numerals; as, James II., Matthew VI., 3, 4, etc.

NOTE.—A period after an abbreviation does not take the place of other points.

## THE INTERROGATION POINT.

1. The interrogation point should be placed at the end of every question; as, Where are you going? Eh?

2. The interrogation point enclosed in curves or brackets is sometimes placed after a doubtful statement; as, Arnold was a loyal (?) American.

## THE EXCLAMATION POINT.

1. The exclamation point should be placed after every exclamatory sentence, member, clause, or

expression; as, How silently the starlight falls to-night! How fresh are these meadows! how green! etc. Hark! the wind blows with unabating fury.

2. The exclamation point should be placed after interjections unless very closely connected with other words; Pshaw! you are trifling.

3. More than one exclamation point may be used to denote intensity of emotion; as, *My boy! My boy!! MY BOY!!!*

4. The exclamation point enclosed in curves or brackets is sometimes placed after an expression to denote wonder or contempt.

*Example*—This great (!) scholar makes blunders.

#### THE COLON.

1. A colon should be placed after a clause that is complete in itself, but does not conclude the sentence; as, “Be yourself: never imitate.”

2. A colon should be placed between the major divisions of a long complex or compound sentence when the minor divisions are separated by semi-colons; as, “Man has effected wonders; he is every day advancing in knowledge and power: yet, surpassed by Nature in even her humblest efforts, he cannot so much as make a blade of grass.”

3. A colon should be placed before a formal enumeration of particulars, or a direct quotation, referred to by the words *following*, *as follows*, *these*, *thus*, etc.; as, Grammar is considered under four

heads: first, Orthography; second, Etymology; third, Syntax; fourth, Prosody.

#### THE SEMICOLON.

1. The semicolon should be placed between the members of a compound sentence unless short and closely connected; as, The wheel of fortune is ever turning; who can say, "I shall be uppermost to-morrow?"

2. The semicolon should be placed between the major divisions of sentences, when minor divisions occur that are separated by commas; as, "And he gave some, apostles, and some, prophets; and some, evangelists; and some, pastors and teachers."

3. The semicolon should be placed before the words *as*, *namely*, *to-wit*, etc., when used to introduce examples; as, One vocation is universally despised; *to-wit*, the liar's.

4. The semicolon should be placed before an informal enumeration of particulars; as, "There are four genders; the masculine, etc."

5. The semicolon should be used to separate the particulars in a formal enumeration of particulars; as, Grammar is considered under four heads: first, Orthography; second, etc.

6. The semicolon should be used to separate the members of a compound sentence, when the connective is omitted; as, The birds swing on the bough; the cattle stand in the pool.

## THE COMMA.

1. The comma is used between the names of a series; as, The chair, table, door, and box are made of wood.

2. Appositional expressions should be set off by commas; as, Washington, the general, became Washington, the statesman.

3. Words repeated for emphasis should be set off by commas; as, Verily, verily, I say unto you.

4. The comma is used when the verb is omitted to avoid repetition; as, "Some came to see; others, to hear."

5. Pairs of words are set off from each other by commas; as, "Sink or swim, live or die, survive or perish, I give my heart and hand to this vote."

6. Words introduced into a quotation should be set off by commas; as, "My mind," said he, "is a kingdom to me."

7. The comma should be used between two correlative clauses.

*Example*—"As we do to others, so shall it be done to us."

8. The comma should be placed after the logical subject of a sentence when it ends with a verb, or when it consists of parts which are themselves separated by commas.

*Examples*—1. Those who try, should try with a will.

2. Cows, horses, and sheep, were huddled together.

9. Pleonastic nouns and pronouns, and those used in direct address should be separated from the rest of the sentence by commas.

*Example*—“Hear, father, hear our prayer?” Our work, how tedious!

10. Transposed words, phrases, and clauses are usually set off by commas.

*Example*—Truly, you are a noble man.

11. A comma is used to prevent ambiguity.

*Examples*—He was overtaken perhaps, while sleeping. He was overtaken, perhaps while sleeping.

12. The comma should be placed before the infinitive mode when it expresses a purpose.

*Example*—We tarried awhile at the capitol, to see the president.

13. The comma should be used when the meaning is thereby made clearer.

#### DASH.

1. A dash is used to denote a break in the construction.

*Example*—Glory—What is it?

2. A dash is used to denote a sudden interruption, or hesitation.

*Examples*—“You know my feelings; you know”—“Hold!” interrupted my friend, “I think I—I—I—” “No you don’t.”

3. The dash is used to denote the omission of letters, figures, or of a word.

*Examples*—In the year 18—, I stopped over night at the village of ——, with my friend S——.

4. The dash is sometimes used instead of the curves to enclose a parenthetical expression.

*Example*—He said “John—for that was the boy’s name—will you bring me some water?”

5. The dash is used to denote a transition in the sentiment.

*Example*—London is noted for its magnificent buildings, its extensive shipping, and—its dexterous pick-pockets.

6. In letter-writing the dash is used after the salutation.

*Example*—My dear Friend:—Your letter, etc.

7. The dash is used to denote an emphatic repetition.

*Example*—Few—few there are, etc.

8. The dash is used to separate the number from the heading of the chapter, and the heading from the paragraph.

*Examples*—Chapter X.—The horse.

*Something new*—Dr. Squires has recently invented, etc.

9. The dash is used to separate the name of an author from his writings.

*Example*—“In solitude, we are at least alone.”—*Byron*.

#### THE CURVES.

1. The curves are used to enclose words which explain, modify or add to the main proposition,

when so introduced as to break the connection between the dependent parts.

*Example*—Every star (so astronomy teaches) is a sun.

2. In dramatic compositions, directions and explanations to the performer are enclosed in curves.

*Example*—*George*—He does not know me. (*Aside.*)

3. A parenthesis should be punctuated the same as an independent expression.

*Example*—

“I love (oh, *how I love*) to ride  
On the fierce, foaming, bursting tide.”

4. If a point is needed in the position occupied by the parenthesis, it usually stands after the last curve.

*Example*—If kindness rules (and it certainly does), let us be kind.

5. The curves are used to enclose points, figures, or letters added for some special purpose.

*Examples*—(a) Hon. (?) John Jones, etc.

(b) This great (!) scholar makes blunders.

#### THE BRACKETS.

1. Brackets are used to enclose words, phrases, and clauses explanatory of what precedes them, to correct errors and to mark manifestations of approval or dissent in public speeches.

*Example*—Each pupil should study their [his] lesson.

2. Brackets are sometimes used as marks of parenthesis to inclose directions to performers, etc., in dramatic compositions.

3. The expressions within brackets are punctuated in the same manner as parenthetical expressions.

4. Brackets are used in lexicography to enclose the pronunciation of words.

*Examples*—They [tha,], Mirage [mi-razh].

#### QUOTATION MARKS.

1. The quotation marks are used to show that a passage is taken *verbatim* from another.

*Example*—Mary says, “The Mississippi flows up hill.”

2. A quotation within a quotation is set off with single quotation marks.

*Example*—“Do you believe ‘a stitch in time saves nine’?” said my friend.

3. When an enclosed quotation itself contains a quotation the latter should have the double marks.

*Example*—“The teacher said, ‘what a lesson the word “perseverance” contains!’”

4. The quotation marks need not be used, when a quotation from another language is printed in italics.

*Example*—The motto of Ohio is, *Imperium in imperio*.

5. The *inverted commas* should be placed before each stanza when several are quoted in regular order, but the apostrophes after the last only.

*Example—*

“ Go to thy rest, fair child !  
 Go to thy dreamless bed,  
 While yet so gentle, undefiled,  
 With blessings on thy head.  
 “ Fresh roses in thy hand,  
 Buds on thy pillow laid,  
 Haste from this dark and fearful land,  
 Where flowers so quickly fade.”

## REFERENTIAL PUNCTUATION.

1. Referential Punctuation is that used for references only.

## THE REFERENTIAL POINTS.

2. The Asterisk, (\*)  
 The Obelisk or Dagger, (†)  
 The Diesis or Double Dagger, (‡)  
 The Parallels, (||)  
 The Section, (§)  
 The Paragraph, (¶)  
 The Leaders, (.....)  
 The Index or Hand, (☞)  
 The Brace, (~~)  
 The Asterism, (\* \* \*)

3. The Asterisk, Dagger, Double Dagger, the Section, Parallels, and the Paragraph are used, in the order presented, when references are made to remarks or notes in the margin, at the bottom of the page, or some other part of the book.

NOTE.—Letters and figures are used for the same purpose..

4. The Section is sometimes used to divide books or chapters into smaller portions.
5. The Paragraph denotes the commencement of a new subject.
6. The Index points out a passage for special attention.
7. The Asterism is sometimes used instead of the index.
8. The Leaders are used to direct the eye to the right across a blank space.
9. The Brace is used to connect several terms to something to which they are all related.

#### ETYMOLOGICAL POINTS.

1. Etymological Punctuation is that used in orthography and in orthœpy to aid in the pronunciation of words.
2. For the use of the Diacritical marks, see Webster's Dictionary.

#### THE ETYMOLOGICAL POINTS.

3.	The Apostrophe,	( ' )
	The Caret,	( ^ )
	The Hyphen,	( - )
	The Dieresis,	( `` )
	The Macron,	( — )
	The Breve,	( ` )
	The Tilde,	( ~ )
	The Grave Accent,	( ` )
	The Acute Accent,	( ' )
	The Circumflex Accent,	( ~ )
	The Dot,	( · )
	The Cedilla,	( , )
	The Suspended Bar.	( ↴ )

4. The Apostrophe is used to denote the omission of letters and the possessive case of nouns.

*Examples*—Don't run. It is John's fault.

5. The Apostrophe is used in the formation of the plurals of letters, figures, marks and signs.

*Examples*—The a's, the 7's, the l's, and the +'s.

6. The Caret, besides its diacritical use, is used to denote the omission of letters or words.

best c  
*Examples*—Honesty is the poliy.  
 ▲ ▲

7. The Hyphen is used to divide words into syllables, after a syllable at the end of a line when part of the word is carried to the next line, and to connect the parts of some compound words.

*Examples*—Ac-ci-dent, con-tact, bone-dust.

8. The Dieresis is placed over the latter of two vowels to show that they are to be pronounced separately; as, Creätor, aërial.

9. The Grave and Acute Accent marks are placed over a single vowel to show that it forms a separate syllable; as, a'ged, bless'ed.

10. The Grave and Acute Accent marks are also used to indicate the rising and falling inflections in reading.

11. The Circumflex Accent is used to indicate the union of both inflections on the same sound.

#### TYPICAL PUNCTUATION.

1. Typical Punctuation is that used by the writer to direct the printer as to the kind of type to be used.

2. In manuscript, one line under a word or expression denotes italics.

*Example—Onward and upward.*

3. In manuscript, two lines under a word or expression denote small capitals.

*Example—RULES GOVERNING THE OBJECTIVE CASE.*

4. In manuscript three lines under a word or expression denote large capitals.

*Example—THE ADVERBIAL CLAUSE.*

5. In manuscript four lines under a word or expression denote italic capitals.

*Example—THE NOUN.*

## PUNCTUATION.

### EXERCISES.

Justify each capital letter and punctuation mark in the following sentences :

1. The first maxim among philosophers and men of sense everywhere is, that merit only, should make distinctions.
2. This is a precept of Socrates: “Know thyself.”
3. We know the uses—and sweet they are—of adversity.
4. Telegraph is divided thus: tel-e-graph.
5. “What a lesson,” Trench well says, “the word diligence’ contains!”

6. A bigot's mind is like the pupil of the eye; the more light you pour upon it the more it contracts.

7. This is the motto of the University of Oxford: "The Lord is my light."

Use capital letters and proper marks of punctuation in the following sentences and give reasons:—

1. dont neglect in writing to dot your *is* cross your *ts* and make your *7s* unlike your *9s*
2. man the life boat.
3. the human species is composed of two distinct races those who borrow and those who lend
4. the advice given ran thus take care of the minutes and the hours will take care of themselves
5. francis II charles IX and henry III three sons of Catherine de medici and henry II sat upon the french throne

TO THE TEACHER.—If further work in punctuation is needed pupils may be required to justify the capitalization and punctuation of sentences found in the school journal. They may be required to justify their own work in "Exercises" Chapter X., or sentences may be placed on the board for correction, *from day to day*. The pupil's work should all be done in *writing*.

#### EXAMINATION QUESTIONS.

1. What is punctuation?
2. How many kinds of punctuation? Name them.
3. What is rhetorical punctuation?
4. Name and execute all the rhetorical points.
5. Give five rules for the use of the period.
6. Give two rules for the use of the interrogation point.

7. Give four rules for the use of the exclamation point.
8. Give three rules for the use of the colon.
9. Give six rules for the use of the semicolon.
10. Give thirteen rules for the use of the comma.
11. Give nine rules for the use of the dash.
12. Give five rules for the use of the curves.
13. Give four rules for the use of the bracket.
14. Give five rules for the use of quotation marks.
15. What is referential punctuation?
16. Name and execute all referential points.
17. Give uses of asterisk, dagger, double dagger, section and paragraph.
18. What does the paragraph denote?
19. What does the index point out?
20. What are leaders used for?
21. What is the brace used for?
22. What is etymological punctuation?
23. Name and execute these points.
24. Give uses of the apostrophe.
25. For what is the caret used?
26. For what is the hyphen used?
27. For what is the dieresis used?
28. For what is the grave and acute accent used?
29. For what is the circumflex used?
30. What is typical punctuation?
31. Give the significance of one, two, three, and four lines placed under words.

[For the use of Diacritical marks see Webster's Dictionary.]

## CHAPTER X.

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### LETTER WRITING AND BUSINESS FORMS.

#### 1. Definitions.

2. Parts of a Letter . . . . . { 1. Heading.  
2. Address.  
3. Salutation.  
4. Body.  
5. Complimentary Closing.  
6. Signature.  
7. Superscription.

#### 3. Addresses.

#### 4. Outlines.

#### 5. General Directions.

6. Methods of Folding . . . . . { First.  
Second.  
Third.

7. Suggestive Forms and Subjects { 1. Man's Life.  
2. Religions.  
3. Duties to Self.  
4. Duties to Others.

#### 8. Forms.

#### 9. Cautions.

#### 10. Exercises.

#### 11. Notes and Drafts.

#### 12. Miscellaneous.

#### 13. Review Questions.

## CHAPTER X.

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### LETTER WRITING AND MANUSCRIPT WORK.

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#### DEFINITIONS.

**Letter**—A written communication from one to another.

**A Theme** is the *subject* upon which a person writes.

**Composition** is the expression of thought in written language.

**Essay** is a composition in which the writer states his views upon a given subject.

**Argumentative Essay** is one that states a thing to be *true* and proceeds to prove it.

**Didactic Essay** is one that conveys in a simple, concise way some important instruction.

**Scientific Essay** is one that explains or discusses some *scientific* truth.

**Direct Discourse** tells what somebody says by using the author's own words.

**Indirect Discourse** tells what somebody says without using the author's own words.

**A Direct Question** can be answered by *yes* or *no*.

**An Indirect Question** can not be answered by *yes* or *no*.

**Narration** is relating events in order of their occurrence.

✓ **A Proposition** is the *thought* expressed in a sentence.

**Quotation** is the repetition of the words of another.

**Anonymous** means without the name of the author.

**Nom de plume** is a name *assumed* by an author as his or her signature.

**Autograph**—A person's own handwriting.

**Monograph**—A special treatise on a particular subject of limited range.

**Monogram**—A representation of interwoven letters abbreviating a name.

**Calligraphy** is fair, elegant or beautiful penmanship.

**Chirography** is a writing by one's own hand.

**Brochure** is a written or printed work, stitched and containing only a *few* leaves.

**Billet** is a short letter or note in writing.

**Billet doux** is a term referring to a love letter.

**Post Script** is a paragraph added to a letter, after it is concluded and signed.

**Appendix** is literary matter added to a book but not necessarily essential to its composition.

**A Seal** is a stamp used, making an impression as a part of a document to legalize, authenticate or secure it.

**Epistolography** is the art or practice of letter-writing.

**The Divisions** of a letter are the parts into which it is divided.

**The Parts of a Letter** are seven: (1) Heading (2) Address. (3) Salutation. (4) Body. (5) Complimentary Closing. (6) Signature. (7) Superscription.

1. **The Heading** is the name of the place and date.

2. **The Address** is the name of the person to whom the letter is written.

3. **The Salutation** is the greeting before beginning the body of the letter.

4. **The Body** is the communication proper.

5. **The Complimentary Closing** follows the body of the letter.

6. **The Signature** follows the complimentary closing.

7. **The Superscription** is the full address written on the envelope beginning well over to the left, half way between the top and bottom.

ALBANY N. Y., March 1st., 1898.

(Address) Mr. L. P. Adams,  
Philadelphia, Pa.

(Salutation) My Dear Sir:

(Body.) Yours of the 18 ult. came duly to hand. I thank you for the information it contains. If I can in any way repay the obligation under which you have placed me, I shall be happy to do so.

(Complimentary closing) Yours Sincerely,

(Signature) W. S. WALKER.

The salutation depends upon the relation of the parties; as, Dear Sir, Dear Mother, Esq., Sir, My Darling Daughter.

The conclusion depends also upon the relation of the parties; as, Very Respectfully, Sincerely, Yours Affectionately.

## THE SUPERSCRIPTION—FORMS.

(1)

[STAMP.]

Mrs. C. S. Page,

Springfield,

Ohio.

(2)

[STAMP.]

Mr. J. W. Norris,

Union Village,

Md.

Allen Co.

(3)

[STAMP.]

Samuel Miller, M. D.,

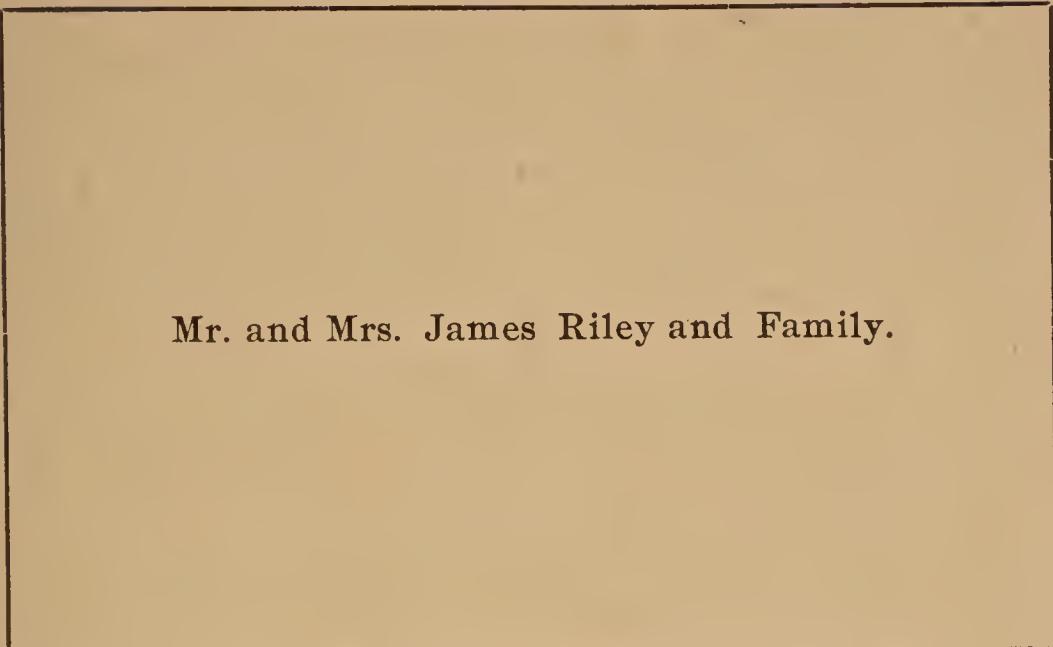
213 Sycamore St.,

Wilmington,

Ohio.

Introducing Mr. Smith.

(4)



Mr. and Mrs. James Riley and Family.

Envelope enclosing a note of invitation. It is never stamped but is itself inclosed in a larger envelope.

ADDRESSES.

**An Unmarried Lady**—Miss Eve Herrington.

**A Married Lady**—(1) Mrs. Amanda Miller, (2) Mrs. George W. Miller.

**A Gentleman**—(1) Mr. Moses Price, (2) Moses Price, Esq.

**A Physician**—(1) Dr. Fillmore Young, (2) Fillmore Young, M. D.

**A Dentist**—(1) Dr. Alexander Greer, (2) Alexander Greer, D. D. S.

**A Business House or Firm**—(1) Mr. John Doe, (2) Messrs. Doe, Aikens & Co.

**An Eminent Teacher**—Prof. Alfred Holbrook.

**A Clergyman.—**

1. (Who has not received the degree of Doctor of Divinity.) The Rev. Charles Benson.
2. (Who has received the above named degree.) The Rev. Dr. John Brock or the Rev. John Brock, D. D.

**The Head of a Department of Government, a Member of Congress, a Judge, or the Mayor of a City**—The Honorable William D. Curtis.

**The President of the United States**—His Excellency, William McKinley, President of the United States.

**The Governor of a State**—His Excellency, Levi P. Morton, Governor of the State of New York.

**Paragraphs** are divisions of a letter.

**The Marginal Line** is the real or imaginary line from one-fourth to one inch from the left edge of the paper extending vertically.

**The Paragraph Line** is a real or imaginary line from one-half to one inch to the right of the marginal line extending vertically down the page. Every line after the first should begin at the marginal line.

**OUTLINES.**

All letters should be outlined before written unless very short. This produces clearness.

**Outline of a letter describing a trip :**

The start; people traveling; incidents; accidents; peculiar persons; the weather; the arrival; description of the place; the outlook; what was accomplished; the return.

**Outline of a letter to a parent in answer to one received :**

Our happiness to hear; will follow his suggestions; how we are; changes, if any; the weather; wishes of success; hopes for his speedy return home, etc.

**A Note of Invitation:**

Mrs. S. M. Smith requests the pleasure of Mrs. Henry Joseph's company on Thursday evening next at 6 o'clock.

Monday, June 29th, 1898.

**Reply—Accepting Invitation:**

Mrs. Joseph presents her compliments to Mrs. Smith and will be happy to accept her invitation for Thursday evening next.

Monday, June 29th, '98.

**Reply—Declining Invitation:**

Mrs. Joseph thanks Mrs. Smith for her kind invitation which, she regrets, she cannot accept in consequence of another engagement.

Monday, June 29th, '98.

**NOTE.**—Teachers may profitably spend the whole time of the lesson occasionally *outlining* and *arranging* thought for letter-writing. A plan should be decided upon owing to the nature of the subject.

## GENERAL DIRECTIONS TO BE OBSERVED IN LETTER WRITING.

**1. Make so plain** as to render a mistake impossible (1) the name of the place and date, (2) the name of the person writing, (3) the superscription on the envelope.

**2. Avoid** unnecessary cross lines, parentheses, quotation marks, dashes and carets.

**3. Do not use** colored inks and fancy paper, nor underline words simply to make them emphatic.

**4. Say in your own** simple, easy natural style what you have to say without seeming too familiar nor too formal.

**5. Outline**—take time and thought to write correctly, securing a certain amount of respect for the person addressed and also for the writer.

**6. Never send** an anonymous letter nor pay any attention to one when received.

**7. Be correct** in spelling, use of capitals and punctuation, covering all the points and making them clear by a few plain, well-chosen, common and familiar words.

## METHODS OF FOLDING.

The letter should be neatly folded with the first page inside as follows :

Fold from the lower edge upward or from the upper edge downward to the extent of one-third and bring the remaining part exactly over the first fold, or

Fold the sheet upon itself from right to left bringing its edges together and then fold from below upward bringing the lower edge upon the upper, or

Fold the lower edge upon the upper, bring a third of this over from right to left and the remaining part over this from left to right.

#### LETTER-WRITING AND MANUSCRIPTS.

**Suggestive Forms, Subjects and Modes of Construction** to be varied as to topic, extent, etc., as circumstances require. To assist the writer in the use of every day words used in letter-writing and in the preparation of manuscripts, composition, etc.

1. Read and spell the sentences orally.
2. Write the sentences observing (1) penmanship, (2) correct spelling, (3) capitalization, (4) punctuation.
3. Indicate the pronunciation by proper diacritical marks as found in the dictionary.
4. Write sentences showing or illustrating the best use of the words.
5. In writing a composition decide upon a plan owing to the nature of the subject.

#### I. MAN'S LIFE.

Man's life involves birth, breath, warmth, care, growth, strength, youth, love, mercy, attention, direction, the finite, death, etc. With mind we connect brain, thought, sense, school, study, perception,

**REMARK:** Always consult the dictionary in case of doubt.

reflection, application, memory, consideration, investigation, wisdom, etc. Schools are known as public, common, graded, high, union, select, model, normal, parish, commercial, preparatory, primary, reformatory, agricultural, scientific, medical, divinity, kindergarten, etc. Do you attend an academy, a seminary, a college, a lyceum, a polytechnic, a gymnasium, or a university? Connected with schools are the director or trustee, the educator, instructor or teacher, the professor, pedagogue, principal, preceptor, preceptress, assistant, monitor, monitress, etc. Schools use text-books, apparatus, paper, colors, a lexicon or dictionary, a clock, chart, pencil, crayon, magnet, blackboard, library, gazetteer, cyclopedia, pens, etc. At intermission and after dismissal, there are many games; as, base-ball, leap-frog, quoits, croquet, etc.

Many words apply to, or describe, persons. We should be gentle, useful, trusty, civil, polite, urbane, discreet, attentive, punctual, industrious, diligent, systematic, energetic, persevering, thorough, sensible, sincere, decided, respectful, abstemious, self-denying, affectionate, true-hearted, sympathetic, humane, conscientious, moral, and religious. We should not be tardy, lazy, fussy, clownish, vulgar, giddy, ostentatious, extravagant, uncourteous, unmannered, domineering, meddlesome, quarrelsome, morose, saucy, insolent, petulant, irascible, headstrong, egotistic, conceited, sullen, brutal, rough, malicious, malevolent, heartless, cruel, treacherous,

savage, base, stingy, mean, parsimonious, dishonest, covetous, niggardly, unscrupulous, greedy, gluttonous, dissolute, nor profligate. With the mouth we can taste, nibble, feast, blame, bicker, brag, titter, giggle, whinney, cackle, babble or prate, gabble, whistle, whisper, whimper, stammer, murmur, wail, banter, chat, tattle, prattle, wrangle, argue, debate, parley, warble, snicker, gossip, gnarl or snarl, gasp, stutter, mutter, chuckle, yell, applaud, teach, preach, recite, cry, rehearse, converse, harangue, pronounce, deprecate or disparage, demonstrate, acknowledge, contradict, catechise, thank, pray, etc. If the notorious thief equivocate, corroborate quickly the truth of your statement and substantiate fully the charge. Discharge the audacious servant, whenever you can get a respectful one. A conscientious and affectionate child will obey now, immediately, instantly, not soon, shortly, to-morrow.

## II. SUGGESTIVE FORMS AND MODES OF CONSTRUCTION.

Religion regards God as the object of obedience, love and worship. It is any system of faith and worship; and hence, may be true or false. God is Lord, Jehovah, Omnipotence, Providence, the Almighty, the Eternal, our Father, Maker, Creator, Preserver, etc. He is infinite in power, wisdom, goodness, justice, truth, mercy, holiness, etc. Jesus was called the Christ, the Anointed, the Messiah, the Word, Savior, Redeemer, Mediator, Intercessor,

Advocate, Judge, Lamb of God, Son of Man, etc. The Holy Ghost is known as the Holy Spirit, the Paraclete, the Comforter, the Dove, etc. We may read of the superhuman, ghostly, spiritual, supernatural, etc. Angels, archangels, seraphim, and cherubim are regarded as beneficent spirits. Satan, fallen angels, and devils are called maleficent spirits. Jupiter, or Jove, was a mythological supreme being; also Odin and Brahma. Certain fabulous powers, as a fay, fairy, and sylph, were regarded as good; others, as a fury, harpy, siren, satyr, imp, elf, vampire, and goblin, as bad. The mythological heaven was called Olympus; paradise, Elysium; hell, Tartarus, Hades, Pluto, and Avernus.

Judaism is the religious doctrines and rites of the Hebrews, or Jews; also, conformity to the Jewish rites and ceremonies. The ending *ism* means doctrine, sect, or party; as, Romanism, Protestantism, Mohammedism, paganism, pantheism, fanaticism, polytheism, monotheism, materialism, formalism, mysticism, skepticism, etc. Denominations of Christians are known as Catholic, Episcopal, Lutheran, Calvinist, Methodist, Reformed, Moravian, Unitarian, Trinitarian, Presbyterian, Swedenborgian, Spiritualist, Quaker or Friend, Baptist, Universalist, etc. We should not be low, mean, base, vile, proud, wicked, sinful, haughty, vicious, profane, skeptical, profligate, irreverent, impious—a scoffer, scorner, mocker, bigot, nor an unbeliever. We should be meek, humble, reverent, faithful, moral, virtuous,

pious, pure, devout, righteous, and godly. Strive for humility, purity, piety, spirituality, sanctity, and holiness. The Mishna and Talmud are Jewish books. The Vulgate is a Latin version of the Scriptures. The Koran is the Mohammedan Bible. Avoid hypocrisy, profanity, irreverence, idolatry, and ungodliness.

### III. RECOGNITION OF GOD.

1. The Supreme Being; author of moral powers; Moral Governor and Rewarder of individuals and nations. The great example. Author of the State and Society.

#### THE THREE GREAT MORAL EXERCISES.

2. Benevolence, the law of good will.  
3. Conscience, duty.  
4. Reverence, regard for the Supreme and the superior.

#### DUTIES TO SELF.

5. Integrity, uprightness, preservation of moral rectitude in the above principles.

6. Self-knowledge; self-respect and modesty; self-appreciation and self-conceit.

7. Sanctity of life (plant, animal), especially human; duty of self preservation; suicide a sin and folly.

8. Physical health and development.  
9. Bodily appetites; exercise and control; temperance; chastity.

10. Desires (in general); for knowledge, society, esteem, power, superiority.
11. Affections (in general); love, reverence, gratitude, kindness, pity, sympathy.
12. Governing principles of life; appetites, desires and affections.
13. Passions; anger, hatred, revenge, ambition, envy, jealousy.
14. Active virtues; faith, energy, enterprise, resolution, decision, perseverance, sagacity, wisdom, prudence, etc.
15. Passive virtues; trust, contentment, submission, meekness, patience, fortitude.
16. Self-improvement; reading, good company, studies, and accomplishments.
17. Self-development; enlargement, and government of mental and moral powers, controlling of imagination, self-excitation and discipline, refinement, studies of examples and models.
18. Government of the tongue; conversation, its value and its rules, courtesy, truth, benevolence; profanity, vulgarity, and rudeness; slang, extravagant speech; sarcasm, scolding, scurrility, harshness, peevishness, scandal, and gossip.
19. Useful labor.
20. Industrial virtues; industry, thrift, economy, attention, promptness, diligence, punctuality, order.
21. Rest and recreation; periodic weekly rest a law of nature, needful for repose, moral instruction, family converse, public worship, private meditation.

The State stands through the rest and moral influences of this day.

22. Morals of manners; dress and personal appearance and personal habits.

23. Habits of mind and action.

24. Love of Nature; æsthetics, the sublime and beautiful, docility to Nature's impressions and teachings, docility to science, natural and mental.

Here we begin to leave "duties to self," the first outward look being upon Nature.

25. Kindness to animals.

#### DUTIES TO OTHERS.

26. Philanthropy; beneficence; helpfulness; practical goodness.

27. Justice; rights and obligations, persons, property, reputation.

28. The stern virtues; veracity, fidelity, honor, courage, firmness, self-control, indignation.

29. The lofty virtues; heroism, generosity, sincerity, liberal-mindedness, magnanimity, self-denial, devotion to duty and principle.

30. Honesty in business; acquisitiveness, use and abuse; covetousness; miserliness; spendthriftiness.

31. Honorable business and occupation.

32. Reciprocity; employers and employed; labor and capital; benefits and gratitudes.

33. Religions and political liberty and liberality; strong convictions with moderation and charity; dangers of political rancor and religious

feuds. Bigotry, superstition. In a free state the obligation of forbearance and liberality to other religious and political faiths.

34. The gentle virtues; peaceableness, cheerfulness, unselfishness, kindness, sympathy, pity, considerateness, tenderness, care of sick and afflicted.

35. Treatment of superiors; aged, magistrates, teachers.

36. Treatment of inferiors (so-called); children, servants, ignorant, feeble-minded, unfortunate, oppressed, criminal.

37. Friendship.

38. The morals of love; purity, fidelity, union for life. True ideals of love and marriage.

39. Family virtues; parental, filial, and fraternal: Home. Here duty begins to leave individuals, and widen out towards bodies of individuals.

40. Neighborliness; concord; public spirit.

41. Love of country; citizenship.

42. Public service; duties of rulers, magistrates, and officials; public trusts, and public money.

43. Love of mankind; service to humanity; international law; peace on earth. Benefactors of the world.

44. The object of life.

SUGGESTION—Have the division and treatment of the subjects made and written upon (1) with reference to their practical bearing upon life, (2) as aids to the discussion of morals.

CRITICISE, (1) the penmanship, (2) plan, (3) spelling, (4) punctuation, (5) use of capitals, (6) general appearance.

GRADE, (1) as to penmanship, (2) as to position, (3) as to plan.

REMARK: Assign a subject, *outline it* and require 10, 25 or 50 lines to be written correctly as regards (1) Writing, (2) Orderly Arrangement, (3) Proper Use of Capitals, (4) Accuracy, (5) Punctuation, (6) Spelling, (7) Spacing, (8) Slant, (9) Size, (10) Shade, (11) Style, (12) Precision, (13) Neatness, (14) Abbreviation, (15) Parallelism, (16) Alignment, (17) Ornamentation. [Finally omit outlining leaving the plan to the learner's own taste and judgment.]

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### LETTERS, NOTES, DRAFTS, ETC.

(1)

#### LETTER OF INTRODUCTION.

*To whom it may concern :*

The bearer, Mr. F. B. Woodman, is well known to us as a man of good moral habits and possessing qualifications which will render him serviceable in any position to which he may aspire. He is thorough and painstaking. We have no hesitancy in recommending him to the public.

Very respectfully,

HARRY HARROLD.

(2)

#### WRITTEN APPLICATION FOR A POSITION.

To \_\_\_\_\_:

We hereby present our application to work (teach, clerk, etc.) for you at — per month (day, week). As to our habits and qualifications we invite your careful investigation. Sincerely hoping we may receive due consideration, we are

Yours Very Regardfully,

JOHN H. WYKOFF.

(3)

St. Louis, Mo., May 1st, 1898.

MESSRS. CHASE &amp; AUSTIN,

New York:

Gentlemen:—

As per our agreement of the 25th ult., we ship you this day (invoice enclosed), 800 kegs nails and 20,000 lbs. lead, to be sold on our joint acct. We leave it entirely at your option to push them upon the market, or to await better prices. Your reputation and experience afford sufficient guarantee that whatever course you may see fit to pursue will be the best.

Very Truly, Yours,

JAMES BELFORD &amp; Co.

(4)

Columbus, O., June 10th, '98.

LOGAN, WILSON &amp; Co.,

Pittsburg, Pa.

Gentlemen:—

We enclose you account sales of nails and lead shipped us last month. Your net gain, as shown, is \$280.32. We think the present a favorable time for this class of sales, and will be pleased to join you in any reasonable amount. Let us hear from you soon.

Respectfully,  
GEORGE W. HAMILTON.

(5)

## LETTER OF RECOMMENDATION.

Troy, O., Aug. 1st, 1898.

To whom it may concern:

This is to certify that we are personally acquainted with the bearer, L. W. Swinton, and know him to be a man of good moral character, honest and trustworthy, and competent to honorably acquit himself in any position to which he may aspire. Any favors shown him will not be misplaced.

Very Respectfully,

HARRY HENDERSON.

(6)

## DUE BILL FOR MONEY.

Columbus, O., June 1st, '98.

\$100<sub>100</sub><sup>00</sup>

Due Amos Owens, on demand, One Hundred Dollars, value received.

HOWARD THOMAS.

(7)

## DUE BILL FOR MERCHANDISE.

Alton, Ill., March 28, '98.

\$75<sub>100</sub><sup>57</sup>Due William W. Woodworth, for work done, Seventy-five  $\frac{57}{100}$  Dollars, payable on demand, in merchandise at my store.

LEMUEL HOPKINS.

**A Due Bill** is a formal written acknowledgment that a certain amount is due—cannot properly be made payable to order and therefore they are non-negotiable.

## LETTER WRITING.

## CAUTIONS.

1. In writing upon any subject do not strain after effect or strive to seem wiser than you are.
2. Do not write on the fourth page if you exceed three pages; use another sheet and insert it.
3. Never divide a syllable at the end of a line.
4. Spell each word correctly.
5. Write the door number, the day of the month and the year in figures, the rest in words.

6. Do not omit titles of respect and courtesy: let them appear in the address, remembering the higher implies the lower and so guard against an excessive use of titles.

7. Let business letters be brief. Repeat nothing, and omit nothing which is needful to say.

8. Write as you feel; only feel right.

9. A lady writing to a stranger should prefix her title—Miss or Mrs.—to her own name.

10. In writing always use familiar words and place them where they will make your thought the clearest.

11. After finishing a manuscript or theme, double the lower half of the sheet over the upper; fold through the middle, bring the top down to the middle, fold again, turn it to the left and write your subject, name and date across the end before handing it to the teacher or examiner for correction.

#### EXERCISES.

1. Write a formal note inviting a friend to a social party.

2. Write a formal note declining an invitation to a social party.

3. Write a letter of five lines to your father, mother, brother or sister with proper heading, introduction and conclusion.

4. Write five superscriptions to real or imaginary acquaintances in as many different cities.

5. Write two brief letters, one to a friend in the location where you live and one to a stranger in a foreign city.
6. Write a letter introducing your friend A. B. to the public, or to a firm.
7. Write a short application for a position as clerk at \$10 per week in a store.
8. Write an application for a position as teacher in a public school at \$2 per day.
9. Write a promissory note, that may be bought and sold, in favor of A. B. for \$200 @ 7%.
10. Write the names of ten States in abbreviated form.
11. Write a letter to the postmaster in Bismark, North Dakota, asking him to forward your mail to your present address.
12. Write twenty lines on "Duties of School Mates to Each Other."
13. Write a letter of recommendation.

TO THE TEACHER.—Continue exercises similar to these, or review, write and rewrite the foregoing. Criticise the style, spelling, capitalization, punctuation, and the mechanical execution—*the penmanship*.

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## NOTES, DRAFTS, ETC.

**I. Notes.**

(1)

\$3000.00

Cleveland, O., March 9th, 1898.

Thirty days after date, for value received, I promise to pay Knapp & Davis, or order, Three Thousand Dollars.

ROBERT HAYES.

(2) \$5000.00 Dayton, O., June 9th, '98.

One day after date, I promise to pay to William Moore, at the Bank of the Capitol, Five Thousand Dollars, value received.

MILLARD TIGNOR.

(3)

\$500.00 Albany, N. Y., April 10th, 1898.

Thirty days from date, I promise to pay to the order of Everts & Masters, at my office, No. 78 West Spring St., Five Hundred Dollars.

H. P. ARMSTRONG.

(4)

\$7000.00 Denver, Colo., April 2nd, A. D., 1898.

Forty days from date, I promise to pay to E. P. Doane, or order, Seven Thousand Dollars, value received.

WARREN SPENCER.

(5)

\$840.50 Chicago, Ill., March 18th, '98.

Ninety days from date, we promise to pay Daniel Drew, or order, Eight Hundred Forty and  $\frac{50}{100}$  Dollars, value received.

JAMES LOGAN.  
JOHN WILSON.

## II. Drafts.

(1)

\$4136 $\frac{25}{100}$  Indianapolis, Ind., Jan. 6th, 1898.

At thirty days sight, pay to the order of Geo. K. Chase & Co., Forty-one Hundred Thirty-six  $\frac{25}{100}$  Dollars, value received, and charge to account of

LOGAN, WILSON & Co.

To Niles & Kinne, New York.

(2)

\$390.00 Washington, D. C., March 8th, 1898.

At ten days sight pay to G. A. Zimmerman, or order, Three Hundred and Ninety Dollars, and charge to account of

RICHARD ROE & Co.

To Fleming, Sons & Co., New York.

(3)

\$2881.00 Philadelphia, Pa., Apr. 20th, '96.

To Manning & Fisher, New York:

At thirty days sight pay to B. L. Longfellow, or order,  
Twenty-eight Hundred Eighty-one Dollars, value received,  
and charge to my account.

J. P. HAMILTON.

**A Note** originates with the payer, and is a voluntary promise to pay.

**A Draft** originates with the person on whose account it is to be made, being in the form of a request.

The two forms of "Negotiable Paper," then, are notes and drafts, differing in form but precisely similar in their legal effect and value.

**Days of Grace**, the time allowed by law between the written date of maturity of a note or draft, and the date upon which it must be paid. It is usually three days.

**Payee**, the person in whose favor the draft or bill of exchange is drawn.

**Drawee.** the person on whom a draft is drawn.

**Drawer**, the person who draws a draft.

**Endorsement**, one's name written on the back of a note by which he becomes liable for its payment.

**The acceptance** is the agreement by the drawee to pay it when due, by writing the word "accepted" with his name, across the face of the draft or bill of exchange.

N. B. "Days of Grace" are no longer allowed in Ohio and some other states.

**A Negotiable** note is one that can be bought and sold.

The words "or order," or "or bearer," make the note negotiable; if "or order," be used it must be endorsed; if "or bearer" be used, the note may be bought and sold without any endorsement.

**Partial Payment.** The receipt of a partial payment is acknowledged by writing the date and the amount of the payment on the back of the note. This is the endorsement.

**Maturity**, the date when a note or draft falls due.

**Note**, a written obligation to pay money or goods.

**Invoice**, a bill of goods bought or sold.

**Liability**, a debt or claim against a person.

**Assets**, available means; resources of any kind.

**Balance of Trade**, the difference between the value of imports and exports.

**Exchange**, the species of paper by which debts are paid without the transmission of money; i. e., a written order from one person to another to pay a certain sum of money.

**Board of Trade**, an association of business men, for the general advancement of commercial interests.

**NOTE TO TEACHER:**

To further aid him in acquiring a more acceptable handwriting a knowledge of business forms, business methods and of book-keeping principles may be taken up, and the

pupil be made more familiar with the nature, form and use of business papers used in ordinary mercantile transactions by bringing to bear available helps on business training and book-keeping as the necessities of the case may seem to require, considering the age and aptness of the learner.

## EXAMINATION QUESTIONS.

1. What is a letter?
2. What is a theme?
3. What is a composition?
4. What is an essay?
5. What is an argumentative essay?
6. What is a didactic essay?
7. What is a scientific essay?
8. What is direct discourse?
9. What is indirect discourse?
10. What is a direct question?
11. What is an indirect question?
12. What is narration?
13. What is a proposition?
14. What is a quotation?
15. What is the meaning of anonymous?
16. What is a *Nom de plume*?
17. What is an autograph?
18. What is a monograph?
19. What is a monogram?
20. What is calligraphy?
21. What is chirography?
22. What is a *brochure*?
23. What is a billet?
24. What is a *billet doux*?

25. What is a postscript?
26. What is an appendix?
27. What is a seal?
28. What is meant by epistolography?
29. What are the divisions of a letter?
30. Name the parts of a letter.
31. What is the heading?
32. What is the address?
33. What is the salutation?
34. What is the body?
35. What is the complimentary closing?
36. What is the signature?
37. What is the superscription?
38. Write in proper order a short letter of half a dozen lines.
39. What does the nature of the salutation depend upon?
40. What does the nature of the conclusion depend upon?
41. Give three appropriate forms of superscription as it should appear on the envelope.
42. Is a note of invitation inclosed in another envelope? Is it ever stamped and sent alone? No.
43. Give the form of the proper address on an envelope enclosing a note of invitation.
44. Give the form of address for an unmarried lady.
45. Give two forms of address for a married lady.
46. Give two forms of address for a gentleman.
47. Give two forms of address for a physician.

48. Give two forms of address for a dentist.
49. Give two forms of address for a business firm.
50. Give one form of address for an eminent instructor.
51. Give three forms of address for a clergyman. Explain.
52. How is the head of a department of government, a member of Congress, a judge, or the mayor of a city addressed?
53. How is the President of the U. S. addressed?
54. How is the Governor of a state addressed?
55. What are paragraphs?
56. What is the marginal line?
57. What is the paragraph line?
58. Outline a letter describing a trip, etc.
59. Write a note of invitation.
60. Write a reply accepting an invitation.
61. Write a reply declining an invitation.
62. Give some general directions always to be observed in letter-writing.
63. In writing a theme or composition what should determine the plan?
64. Name the three "Great Moral Exercises."
65. Write ten lines or more on each.
66. Write ten lines or more on "Duties to Self."
67. Write ten lines or more on "Self-Development."
68. Write ten lines or more on "Duties to Others," etc.

69. Choose your subject, outline it, and write forty lines correctly as regards (1) writing, (2) orderly arrangement, (3) proper use of capitals, (4) accuracy, (5) punctuation, (6) spelling, (7) spacing, (8) slant, (9) size, (10) shade, (11) style, (12) precision, (13) neatness, (14) abbreviations, (15) parallelism, (16) alignment, (17) ornamentation.
70. Write a short letter of introduction.
71. Write an application for a position.
72. Write a letter of recommendation.
73. Write a due bill for money.
74. Write a due bill for merchandise.
75. Are due bills negotiable?
76. Write a promissory note.
77. Discuss different forms of promissory notes.
78. What is a note?
79. What is a draft?
80. What are the two forms of negotiable paper?
81. What are "Days of Grace?"
82. Who is the payee?
83. Who is the drawee?
84. Who is the drawer?
85. What is an endorsement?
86. What is an acceptance?
87. What is a negotiable note?
88. What words make a note negotiable?
89. What is a partial payment?
90. Define "note" and "maturity."
91. Define invoice, liabilities and assets.
92. Define exchange.

93. What is meant by balance of trade?
94. What is a board of trade? Its object?
95. Repeat ten cautions on letter writing and manuscript.
96. Review the "Exercises."



## CHAPTER XI.

### NARCOTICS.

#### 1. Definitions.

1.	Brain.	1.	Moral Sense.
2.	Cord.	2.	The Will.
3.	Nerves . . . .	3.	Intellect.
4.	Stomach.	4.	Motion.
5.	Heart.	5.	Sight.
6. Blood and Circulatory System.			
7.	Liver.		
8.	Lungs.		
9.	Kidneys.		
10.	Spleen.		
11.	Dropsey.		

#### 2. Alcoholism . . . . .

1.	Skin.	1.	Moral Sense.
2.	Countenance.	2.	The Will.
3.	Eye.	3.	Intellect.
4.	Heart.	4.	Motion.
5.	Alimentary Canal.	5.	Sight.
6.	Nervous System in General.		

#### 3. Opium . . . . . (Morphinism).

1.	Skin.	1.	Moral Sense.
2.	Countenance.	2.	The Will.
3.	Eye.	3.	Intellect.
4.	Heart.	4.	Motion.
5.	Alimentary Canal.	5.	Sight.
6.	Nervous System in General.		

#### 4. Chloral . . . . . (Chloralism)

1.	The Nervous System.	1.	Moral Sense.
2.	Digestive System.	2.	The Will.
3.	Heart and Circulation.	3.	Intellect.
4.	Skin.	4.	Motion.

#### 5. Paraldehyde.

#### 6. Cannabis Indica.

#### 7. Cocaine.

#### 8. Bromides.

#### 9. Tobacco.

#### 10. Chloroform.

#### 11. Ether.

#### 12. Comparisons . . .

1.	Chloralism and Morphinism.
2.	Chloroform and Ether.

#### 13. The Origin or Source of Narcotics.

## CHAPTER XI.

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### NARCOTICS.

**Narcotics** are drugs which lessen the relationship of the individual to the external world.

**Hypnotics** are narcotics which produce sleep without causing any preliminary cerebral excitement. Ex. Paraldehyde and Bromides.

**Anodynes** or **Analgesics** are narcotics which relieve pain either by impairing the conductivity of the sensory nerves, or by depressing the cerebral centers of sensation and perception. Ex. Opium, and its alkaloids Morphine and Codeine.

**NOTE TO TEACHERS:** The nature and effects of narcotics should be discussed in the study of Penmanship, in a special manner, for the following reasons:

*The uses and abuses of Narcotics* may give rise to disorders of motion such as complete or incomplete loss of muscular power, tremor affecting the hands and arms rendering the person awkward and uncertain in movement, the extensor muscles may become paretic or paralyzed, the muscles of the eye become involved and disturbed vision occur. The inevitable result of alcoholism is *Incoordination*.

*Disorders of General Sensibility* as of cramps, discomfort, malaise, etc., is prone to occur, the *will-power* is gradually lost and indifference becomes marked, judgment becomes uncertain and the association of ideas inexact. The great aim is to keep the nervous system in first-class, normal condition—a thing impossible if the uses of narcotics be abused.

**Anæsthetics** are narcotics which temporarily destroy sensation. Ex. *General Anæsthetics* — Ether, Chloroform and Nitrous Oxide. *Local Anæsthetics* — Ether Spray or Methyl Chloride, Cocaine, Ice, or Extreme Cold.

**Stimulant** is a term used to designate the action of any agent which increases the organic activity of any part of the organism. *Alcoholic preparations* are usually called "stimulants," although their action is really that of a true narcotic.

**Sedatives** are narcotics which lessen the functional activity of organs, lower motility, diminish pain and so exert a soothing influence on the system. Ex. Chloral, Opium in small doses, Bromides, etc.

**Deliriants** are narcotics which excite the functional activity of the higher brain to such an extent as to disorder the mental faculties, and produce intellectual confusion, loss of will power, delirium, and even convulsions. Ex. Alcohol (full doses), Cannabis Indica, and others owing to the amounts taken.

**Cerebral-Depressants** are narcotics which lower or entirely suspend the functions of the higher brain after a preliminary stage of excitement. Ex. Alcohol (large doses), Opium, Chloroform, Bromides, Chloral.

**Motor Depressants** are narcotics which lower the functional activity of the spinal cord and motor ap-

paratus—(movements of any kind), and in *large doses*, paralyze them directly. Ex. Alcohol, Opium, Ether, Chloroform, Chloral and Tobacco.

#### THE ACTIONS AND EFFECTS OF NARCOTICS.

**How are the Actions and Effects of narcotics brought about?**

By the same processes that medicines act or foods feed, viz:

By their breaking up into ultimate elements kinetic energy is evolved from the potential energy previously locked up in the drug, and the force so released acts upon the structures of the body bringing about certain changes in vital operations which favorably or unfavorably influence the life-forces of the individual.

#### I. ALCOHOLISM.

**Alcoholism** consists in the changes produced in the various viscera by the habitual indulgence in alcohol.

**1. The Brain.** The ultimate lesions of the brain are not yet fully known; but most commonly it is found to be throughout or in certain parts atrophied or shrivelled, its convolutions flattened and its surface retracted. This may sometimes be due to the pressure of collections of hemorrhagic or inflammatory products, and the occurrence of patches of sclerosis or hyperplasia of the connective tissue. Softening of the brain from Alcoholism is usually the result of thrombosis. The dura mater becomes

thickened and the arachnoid opaque. The walls of the cerebral blood vessels become fatty or atheromatous.

**2. The Spinal Cord.** The same changes may occur in the Cord as in the brain producing the symptoms of Sclerosis with characteristic and painful spots along the spine.

**3. The Nerves** extending from the brain and cord may *themselves* suffer since multiple neuritis is sometimes seen as a result of Alcoholism.

**Disorders of Moral Sense** is among the early phenomena. He who was once punctilious, considerate, and thoughtful, becomes negligent, selfish, and indifferent to sentiments of honor and emulation. Prone to acts of sudden violence he becomes excitable, perverse, or gloomy, taciturn and pre-occupied.

**The Will.** The subject of Alcoholism, very often, scarcely knows his own mind. Especially does he lack the power to say No. Vacillation, indecision, and dependence upon others become characteristic traits. Will-power becomes destroyed.

**Disorders of Motion.** These consist of tremor, sub sultus, spasm, muscular paresis and palsies. Voluntary movement intensifies the tremor. Alcoholic tremor affects the hands and arms, renders the person awkward and interferes with his ability to write or work. Little by little a complete loss of muscular power results. Paralysis attacks especially

the extensor muscles. The eye muscles may become affected. In short, *incoordination* is the inevitable result of Alcoholism.

**Disorders of Sight.** These are among the earliest and most marked symptoms. Objects appear as if seen through a fog and phosphenes, scintillations and streams of light, etc., are complained of. It is one of the causes of color-blindness or Daltonism. Atrophy of the optic nerve occurs as a direct result of Alcoholism. Conjunctivitis, Iritis, Ulcerations of the Cornea, etc., occur.

**Disordered Intellect.** Loss of intellectual power comes last, and consists in diminution of vivacity and readiness. Apathy and indifference is marked, and the power of argument, reasoning and judgment is uncertain and the association of ideas are inexact. At length intellectual degradation unfits the subject for the ordinary relations of life.

**4. The Stomach.** It congests the stomach, over-stimulates the gastric glands, and causes acute gastritis or catarrhal inflammation and if continued in large doses it precipitates the pepsin and destroys its activity as a ferment and arrests digestion, causes acid fermentation, and acid eructations associated with which is loss of appetite, little or no digestion, sallowness, mental depression and headache.

**5. The Heart.** (1) *In Small Doses*, it briefly stimulates the heart prolonging its systole and reducing the length of its diastole. (2) *In Large Doses*,

it depresses the heart and lowers the arterial tension. (3) *In Toxic Doses*, it produces muscular resolution and death occurs by paralysis of the heart.

**6. The Blood and Circulatory System.** It produces fatty degeneration of the blood and walls of arteries and various organs. It acts directly upon the water of the blood and upon its albuminoid principles. The corpuscles of alcoholized animals have been found relatively large in accord with the fact that the product of the reactions normally taking place within the corpuscles, pass with greater difficulty into serum containing alcohol as the current of osmosis tends rather from the serum to the corpuscles.

An unusual amount of fatty matter in a state of fine sub-division has frequently been found in the blood of individuals who have died in a state of alcoholic intoxication.

Dilatation of the capillaries and an increased afflux of blood manifest themselves in the flushed face, brilliant eyes, and warmth of surface which are familiar phenomena, and frequent repetition tends to permanently impair the activity of the peripheral circulation, giving rise to the vascular twigs and rubicund nose of the habitual drinker.

Alcohol having entered the blood reaches all the organs of the body, and has been recovered by distillation not only from the blood itself, but also from the brain, lungs, liver, kidneys, and various

secretions. Capillary aneurisms and extravasated blood in circumscribed collections, and finally capillary hemorrhages may occur.

**7. The Liver.** It produces congestion of the liver, overstimulates the hepatic cells to the production of pathological secretions. The liver gradually becomes indurated, the fibrous tissue increases, producing hob-nail liver or cirrhosis.

**8. The Lungs.** It lowers their resistance power to morbid influences, and a low grade of inflammation, resulting in hyperplasia of the connective tissue, may be developed, causing chronic catarrhal pneumonia or fibroid phthisis. Chronic pleurisy is also often seen.

9 and 10. The Kidneys and Spleen undergo changes similar to those seen in the liver, and give rise (1) To Cirrhosis or "Gouty Kidney," "Chronic Bright's Disease" of the Kidney and "Renal Hyperæmia." (2) "Splenic Hyperæmia," "Acute Splenitis," and "Splenic Abscess."

**11. Dropsy.** Alcoholism leads directly to producing six of the eight conditions which produce dropsy in the human system, viz: (1) Diseases of the Heart. (2) Diseases of the Liver. (3) Diseases of the Kidneys. (4) Diseases of the Lungs. (5) Diseases of the Spleen. (6) Diseases of the Intestinal Glands.

#### THE OPIUM HABIT OR MORPHINISM, CHLORALISM, ETC.

Next to alcohol, opium and morphine are habitually used and abused to a greater extent than any

other narcotic. And instances of it, we are sorry to say, are frequently encountered in all classes and particularly among people of means and refinement.

Chloral, paraldehyde, cannabis (hemp), ether, chloroform, and cocaine, etc., are also used to a less extent.

## II. OPIUM AND ITS ALKALOIDS.

### GENERAL CONSIDERATION.

1. **The Skin** becomes relaxed, inelastic, and dull.
2. **The Countenance** becomes cyanotic and muddy in appearance, and most frequently furtive and timid.
3. **The Eye.** Diminished power of accommodation takes place and the pupils are commonly contracted or unequal, and usually very eager and bright. There is persistent anæmia of the retina.
4. **The Heart.** It is often irregular, and weak. The pulsation at the wrist variable and the vaso-motor disturbances give rise to flushing of the face and irregular sensations of heat over the body. Palpitations with præcordial distress is common.
5. **On the Alimentary Canal.** It has two chief actions, (1) irritation of the mucous membrane, (2) diminution of paristalsis.
6. **The Nervous System in General.** Trembling of the hands and of the tongue occurs resembling alcoholic tremor. Painful spots along the spine and

various kinds of neuralgias, especially supra-orbital, intercostal and praecordial. Sleep comes late, irregular and unrefreshing. There is giddiness or vertigo. Appetite and general nutrition fail; emaciation is often marked, rapid, and sometimes extreme.

In man, the action of opium and its alkaloids, morphine and codeine is chiefly manifested upon the brain. The functions of the nervous system are abolished in the order of their development, the highest centers being the first affected.

### III. CHLORAL HYDRATE.

The consumption of chloral as a narcotic has reached an extent in certain classes of society which raises it, after alcohol and opium, to the third place among such agents. It is a powerful hypnotic.

**1. The Nervous System.** The nervous system bears the blunt of the disturbance as shown by confusion of thought, inability to converse or to write. Formication of the surface of the body, encircling bands of pain above the wrists and ankles, co-ordinating power impaired; has great trouble in writing, buttoning his coat, etc. The mental state is characterized by dullness, apathy, confusion and uncertainty.

**2. The Digestive System.** The derangements of the digestive system are; (1) Primary, the direct irritant action of the drug upon the nervous tissues of the mouth and stomach resulting in gastro-duo-

denal catarrh. (2) Secondary, its effects upon the nervous centers in the walls of the stomach and intestine and the nerve centers in general.

**3. The Heart and Circulation.** It weakens and finally paralyzes the vaso-motor center and thus dilates the blood-vessels, and at the same time the heart action weakens and becomes intermittent, irregular, and palpitation occurs. The composition of the blood is changed as shown by petechiae, sponginess of the gums, and serous effusions.

**4. The Skin.** The skin undergoes nutritive changes of a marked kind—chronic congestion of the face, neck and ears is often very striking. And erythematous, urticarious, papular, vesicular, and pustular eruptions often occur.

Chloralism and morphinism alike produce the following derangements: Intellectual enfeeblement, inability to concentrate the mind, habitual timidity, and impairment of memory. In the worst cases—hallucinations, delusions, and delirium occur, acute mania may occur, and dementia constitutes a terminal state.

#### IV. PARALDEHYDE.

Paraldehyde is a hypnotic about one-half the power of chloral. In large doses it paralyzes the heart and respiration. It may give rise to cerebral congestion and vaso-motor paralysis if used for any long period, and, like chloral, causes an erythematous eruption of the skin.

## V. CANNABIS (INDICA).

Cannabis Indica, if used to excess like the other narcotic, produces intellectual confusion. The peculiar action of this drug is, because of the ideas following each other so rapidly, as if minutes were as long in duration as hours or even days. And sensations of double consciousness and enormous dimensions are experienced.

## VI. COCAINE.

Cocaine produces incoordination of movement. Owing to the size of the dose hallucinations and delirium occur. It stimulates the brain by increasing its blood supply and this increased blood supply may lead to capillary aneurisms and patches of extravasated blood and if any weakness exists in the arterial walls even though caused from some other disease, hemorrhage may occur.

It dilates the pupil of the eye by stimulation of the sympathetic nerve in the iris. It diminishes the sense of hunger and fatigue. In Lethal Doses it paralyzes the intra cardiac motor ganglia, and the posterior columns of the cord and sensory nerves, and the respiratory center. Cocaine is also a local anæsthetic.

## VII. BROMIDES.

“Bromism” is understood to mean the general result of their action and is believed to be due to

the sedative influence of the bromides on the sympathetic system, causing general anæmia of the brain, spinal column and skin.

Their actions may be briefly summed up as follows: They are decomposed in the blood and reformed at the points of elimination and thus cause irritation of the mucous surfaces of the fauces, bronchi, intestines, skin and kidneys. Continued for some time they produce severe gastric catarrh. They reduce the number of respirations, and the action and force of the heart. They lower arterial tension, and lessen the activity of the brain cells producing somnolence. They cause anæsthesia of the skin and mucous membranes by diminishing the sensibility of the peripheral nerves. Owing to their abuse they impair motility, cause pallor and emaciation, lower the body temperature, and bring about defective co-ordination destroying pen-prehension and poising, and if their use be long continued may impair the mental faculties, in some cases producing melancholia with suicidal intent, and in other cases hallucinations, etc. Paralysis when it occurs begins at the periphery and extends to the centers. They are pre-eminently depressants of the cerebral and spinal functions. They are hypnotic narcotics. The difference in action between the potassium, sodium, ammonium, lithium, calcium, zinc and ferrous bromides will not be discussed in this chapter.

## VIII. TABACUM--TOBACCO.

**Smoking or Chewing.** The continued use by smoking or chewing to excess produces granular inflammation of the fauces, and pharynx, atrophy of the retina, dyspepsia, nervous depression, heart irritability, sudden faints, and occasionally angina pectoris. If used by the young it hinders the development of the higher nerve centres by impairing the nutrition of the body, and by interference with the processes of digestion and assimilation. It produces increased salivary and intestinal secretion, and tremor. From lethal doses or sudden and excessive use there results a cold and clammy skin, collapse, and death usually results by paralysis of the respiration or the heart. Tobacco contains a powerful liquid alkaloid Nicotine. Empyreumatic products are results of its combustion. They are Pyridine and Collidin. Tobacco-smoke contains little or no Nicotine; in that from pipes Pyridine preponderates, in that from cigars Collidin, which is much less active. Death has occurred from a toxic dose of pure Nicotine in three minutes with no symptoms save a wild stare and a deep sigh. Tobacco is to be classed as a sedative narcotic.

## (IX. AND X.) CHLOROFORM AND ETHER.

Chloroform is more prompt in action and more dangerous than ether. Both act similar to alcohol on the cerebrum and the motor and sensory nerves.

but more prompt and less protracted. They are anæsthetic narcotics. When swallowed they both produce violent gastro-enteritis from irritation of the mucous membranes. Chloroform inhaled is much more dangerous than ether inhaled, because death from the inhalation of chloroform is nearly always sudden and by paralysis of the heart,—from Ether it is slow and usually by paralysis of the lungs. Anæsthesia by inhalation is divided into three stages (1) the stage of excitement (cerebral intoxication), (2) the convulsive stage, (3) complete insensibility. The main use of chloroform and ether is to temporarily destroy sensation for the purpose of operation.

Health. In health there is no benefit to be derived from the use of alcohol or other narcotics. In certain diseased conditions they are of undoubted value.

#### ORIGIN OF THE PRINCIPAL NARCOTICS.

**1. Alcohol.**—Common Alcohol or Ethyl Alcohol ( $C_2 H_5 OH$ ) is prepared from saccharine liquids by the growth of a microscopic plant called yeast, or ferment. The process is called fermentation. The yeast plant is called *Torula* or *Micoderma cerevisiae*.

**2. Opium.** The concrete, milky exudation obtained in Asia Minor by incising the unripe capsules of the White Poppy. It contains seventeen alkaloids, two neutral bodies and two organic acids, besides wax, gum, resin, sugar, odorous principles, etc. Morphine is the chief alkaloid of opium.

3. **Chloral** is prepared by passing dry chlorine into absolute alcohol until saturated, and then adding sulphuric acid and distilling off the chloral.

4. **Paraldehyde** is prepared by the action of sulphuric acid or nitric acid on aldehyde. Aldehydes are formed in the first stage of the oxidation of alcohols and are intermediate between alcohols and acids. They are alcohols less two atoms of hydrogen.

5. **Cannabis** is obtained from the flowering tops of Cannabis Indica in India, or from Cannabis Americana in America. It is called "Hemp," but it is not the "Indian Hemp" which is altogether a different plant.

6. **Cocaine** was discovered by Neumann in 1859. It is a crystalline alkaloid obtained from the leaves of Erythroxylon Coca, a small Peruvian shrub. [Do not confound coca with cocoa which is prepared from the seeds of the chocolate tree.]

7. **Ether** is prepared by distilling ethylic alcohol with sulphuric acid, by heating the mixture and distilling over the resulting ether.

8. **Chloroform** is prepared by the action of chlorinated lime upon alcohol. It was discovered in 1831 by Samuel Guthrie of Sackett's Harbor, N. Y. Also by Sobeiran and Liebig, in the same year.

9. **Bromides** are obtained usually from the alkaline metals as the Bromide of Potash, Bromide of Soda, etc.

**10.** **Tobacco** is obtained from the dried leaves of Nicotiana Tabacum, a native of tropical America.

#### EXERCISES.

1. Write ten lines on "How do Narcotics Act?"
2. Write ten lines on "How does the abuse of Alcohol affect the Brain?"
3. Write ten lines on "How does the abuse of Alcohol affect the Will?" (1) "How affect sight?" (2) "How affect intellect?"
4. Write on "How does Alcohol affect the Nervous System?"
5. Write fifteen or twenty lines on "How does Morphine affect the Nervous System in General?"
6. Write fifteen lines on "How does Chloralism affect the Nerves?"
7. Write ten lines on "Cannabis."
8. Write ten lines on "Cocaine."
9. Write twenty lines on "Bromides."
10. Write fifteen lines on "Tobacco."
11. Write ten lines on "The Actions and Effects of Chloroform and Ether."
12. Write twenty lines or more on "The Origin of the Principal Narcotics."

**To THE TEACHER.**—After this everything must pass rigid muster, let critical analysis be expected in review and do not fail to meet the expectations of the applicant.

## EXAMINATION QUESTIONS.

1. Define narcotics.
2. What are hypnotics ?
3. What are anodynes ?
4. What are anæsthetics ? Kinds ?
5. What are stimulants ?
6. What are sedatives ?
7. What are deliriants ?
8. What are cerebral-depressants ?
9. What are motor-depressants ?
10. How do narcotics act ?
11. What is alcoholism ?
12. How does alcohol affect the brain ?
13. How does alcohol affect the spinal cord ?
14. How does alcohol affect the cerebral vessels ?
15. How does alcohol affect the nerves ?
16. Discuss the disorders of moral sense.
17. Discuss the disorders of will power.
18. Discuss the disorders of motion.
19. Discuss the disorders of sight.
20. Discuss the disorders of intellect.
21. How does alcoholism affect the stomach ?
22. How does alcoholism affect the heart ?
23. How does alcoholism affect blood vessels ?
24. How does alcoholism affect the blood ?
25. How does alcoholism affect the liver ?
26. How does alcoholism affect the kidneys and spleen ?

27. Name the six conditions by which alcoholism produces dropsy.
28. Which narcotic is abused most? Alcohol. Which next? Opium and morphine. Which third? Chloral.
29. Give the effect of opium and its alkaloids on (1) the skin, (2) the countenance, (3) the eye.
30. How does morphinism affect the heart?
31. The alimentary canal?
32. In what order are the functions of the nervous system abolished?
33. Give the effects on the nervous system in general.
34. Give the effects of chloralism on the nervous system. (35) On digestion, (36) on the heart and circulation, (37) on the skin.
38. Compare chloralism and morphinism.
39. Discuss the action of paraldehyde.
40. Discuss the action of cannabis.
41. Discuss the action of cocaine.
42. Discuss the action of bromides.
43. What is "Bromism"
44. Name six bromides.
45. Discuss the action of tobacco.
46. Name the liquid alkaloid of tobacco.
47. What are empyreumatic products?
48. Does tobacco smoke contain nicotine? *Ans*  
It is thought not.
49. Name two empyreumatic products of tobacco.  
Where found?

50. Is the alkaloid nicotine a deadly poison? What is the shortest time recorded in which it has produced death?

51. To what class of narcotics does tobacco belong?

52. Compare chloroform and ether as to their action.

53. Give the stages of anæsthesia by inhalation.

54. Is there any benefit whatever to be derived from the use of narcotics by a healthy person?

55. Give the origin or source of the following narcotics: (1) alcohol, (2) opium and morphine, (3) chloral, (4) paraldehyde, (5) cannabis, (6) cocaine, (7) ether, (8) chloroform, (9) bromides, (10) tobacco.



## MISCELLANEOUS EXERCISES.

1. What is meant by the "Writing Instruments?"  
— The hand and arm from the shoulder center.
2. What is "Wrist Rolling?"  
— Rolling the hand and wrist too far either outward or inward.
3. What are the "Gymnastics" of writing?  
— Movement exercises.
4. What are "Pen Pinchers?"  
— Persons who pinch the pen. This should be corrected by using a large pen holder.
5. When should pupils begin combinations?  
— When they have learned to write a fairly good hand.
6. What style of writing in general should be preferred?  
— That which is easiest now and promises to be the easiest in after years and which will facilitate business. Slant writing seems to promise most for the future.
7. Can a pupil become a good penman who is a poor speller?  
— No, because it interferes with attention to form and causes hesitation in speed.
8. What is absolutely necessary for a person who would learn a good handwriting?

— To be an able critic and to practice much on the style of writing he prefers.

9. For the most part how is good form attained?

— Mainly by individual effort. Let every impediment to free action be done away with and use plenty of free movement drill.

10. To obtain the greatest amount of freedom how must the hand move?

— As a unit.

11. What is meant by the "Muscular Movement?"

— That in which there is no finger movement, the hand being propelled back and forth laterly from the cushion of muscles below the elbow.

12. Which are termed "variable lines" in penmanship?

— The final and connecting lines because they depend upon the combination.

13. What is produced by "direct" and "inverse" loop movement?

— Upper and lower loops.

14. Which are the more teachable, standard capitals or current styles?

— Standard capitals, although "muscular movement" seems best adapted to current styles.

15. What is meant by "Main Slant?"

— Usually a slant of fifty-two degrees. It may vary however between fifty-two and thirty-seven degrees or even more owing to the style of handwriting.

16. How many different kinds of movements may be employed in writing?

— Primary and Secondary, or Whole Arm and Finger with their various combinations.

The Whole Arm movement resting on the belly of the flexor muscles below the elbow is to be preferred. [This movement is referred to by penmen as "muscular," "forearm," "combined," etc.]

17. What general rule must be remembered in making figures?

— Make them so plain that one can not be mistaken for another. They should never be doubtful.

18. Upon what does uniform spacing chiefly depend?

— Upon position and uniform movement.

19. What is meant by "Business Writers' Movement?"

— Muscular movement. [Explained in No. 16.]

20. What is meant by the "Off Hand Movement?"

— The arm swinging clear from the shoulder with possibly the third and fourth fingers touching the paper.

21. What is meant by "Vibratory Movement:" also by "Projective Movement?"

— Whole Arm movement resting upon the muscles below the elbow. It is commonly called "Fore Arm Movement" or "Muscular Movement."

22. Is writing a "Mechanical Performance?"

— No, not purely so, because the anatomy and physiology of the writing instrument and a thorough knowledge of the underlying principles of form and movement are essential in the execution or performance.

23. How should pens be selected?

— Owing to the kind of writing to be done. The pen, as a rule, should have a smooth even point neither too sharp nor too blunt.

24. What is your method of conducting a recitation in writing?

— By drilling on appropriate movement exercises and applying the same in letters, forms, words and sentences. [Methods will vary owing to the grade. A plan must be decided upon. Let "System" be the watchword.]

25. How would you overcome some of the common faults in executing small and capital letters?

— By duly considering movement drills in relation to the form of letters and by grouping for practice on a basis of resemblances and differences.

26. How should type written copies be prepared?

— With reference wholly to results that may follow the use of them in our public schools.

27. How should a teacher judge as to the correctness of the manner in which any writing has been executed?

— He should be able to judge largely from the writing itself aside from *seeing* the pupil execute it.

28. Can the elbow be regarded as a "fixed point" in writing the vertical hand?

— No.

29. What is the objection to "elbow lifting?"

— It changes the rest from the cushion of muscles below the elbow to the shoulder thus converting it from the "Business Movement" to that of the "Off Hand Movement."

30. How may strokes be combined?

— By turns, angles, ovals and loops.

31. What is connective slant?

— The slant of lines connecting downward strokes and is usually about thirty degrees.

32. What class of lower case letters are the same height as capital letters?

— The extended or loop letters.

33. What are the main points in teaching beginners to write?

— Analysis and formation of letters. [Synthesis.] There must be a clear conception of form as a foundation and then learn to execute with ease and rapidity.

34. What three capital letters are divided equally by the base line?

— J, Y and Z.

35. In what respects is the capital stem variable?

— In height, curvature and slant.

36. Name three important requisites in penmanship.

— Legibility, rapidity and continuity.

37. How is the plainness of each letter insured in any combination?

— By being accurate in the form of each letter, and by placing a proper connecting line between them.

38. What curves need special notice?

— Those beginning and finishing letters.

39. How are figures shaded? How many should an ordinary writer make per minute?

— On the same principles as letters: 100.

40. Name some of the most common faults in making small and capital letters.

— Irregularity; imperfect forms; lifting the pen in executing words.

41. How is space measured in penmanship?

— Usually on the line of arrangement by the rectangle, 3 x 4, as the unit of measure. [This should correspond to the difference between the straight lines of the small letter "u."]

42. What movement seems best adapted to long strokes?

— Muscular movement, or Fore Arm.

43. Where are the connective or joining lines correctly seen?

— In combination.

44. What kind of lines run from one letter to another in the word "coax?" Why are they not the same as when these letters stand alone?

— Connecting lines. Because of the combination.

45. If a letter ends with a right curve and the one following begins with a left curve, what kind of curve will the connective be?

— A compound curve.

46. If a letter ends with a right curve and the one following begins with a right curve what kind of curve will the connective be?

— A right curve.

47. Should pupils under seven or eight years of age be urged to write a systematic hand?

— No, not necessarily, but he may begin such practice, though it be large and irregular as will lead to proper stroke movement and its application to the manner of execution of principles joined so as to produce letters and words or even entire words as units.

48. What is "lounging?" How corrected?

— The habit of lying or sprawling upon the desk in a lazy, careless way, and may be corrected by working at a desk where the writer having such a habit will be compelled to stand on his feet while writing.

49. What causes "wrist wobbling?"

— Slack tendons and looseness among the carpal bones. It may occasionally be overcome by proper splints.

50. Should teacher and pupils be contented with any one text-book or system of copy books in a school?

— No. They should call to their assistance the thoughts and help of our best educators through the aid of up-to-date wide awake journals and books and thus become able critics, dissecting out that which is best for us now and promises most for the future.

THE END.

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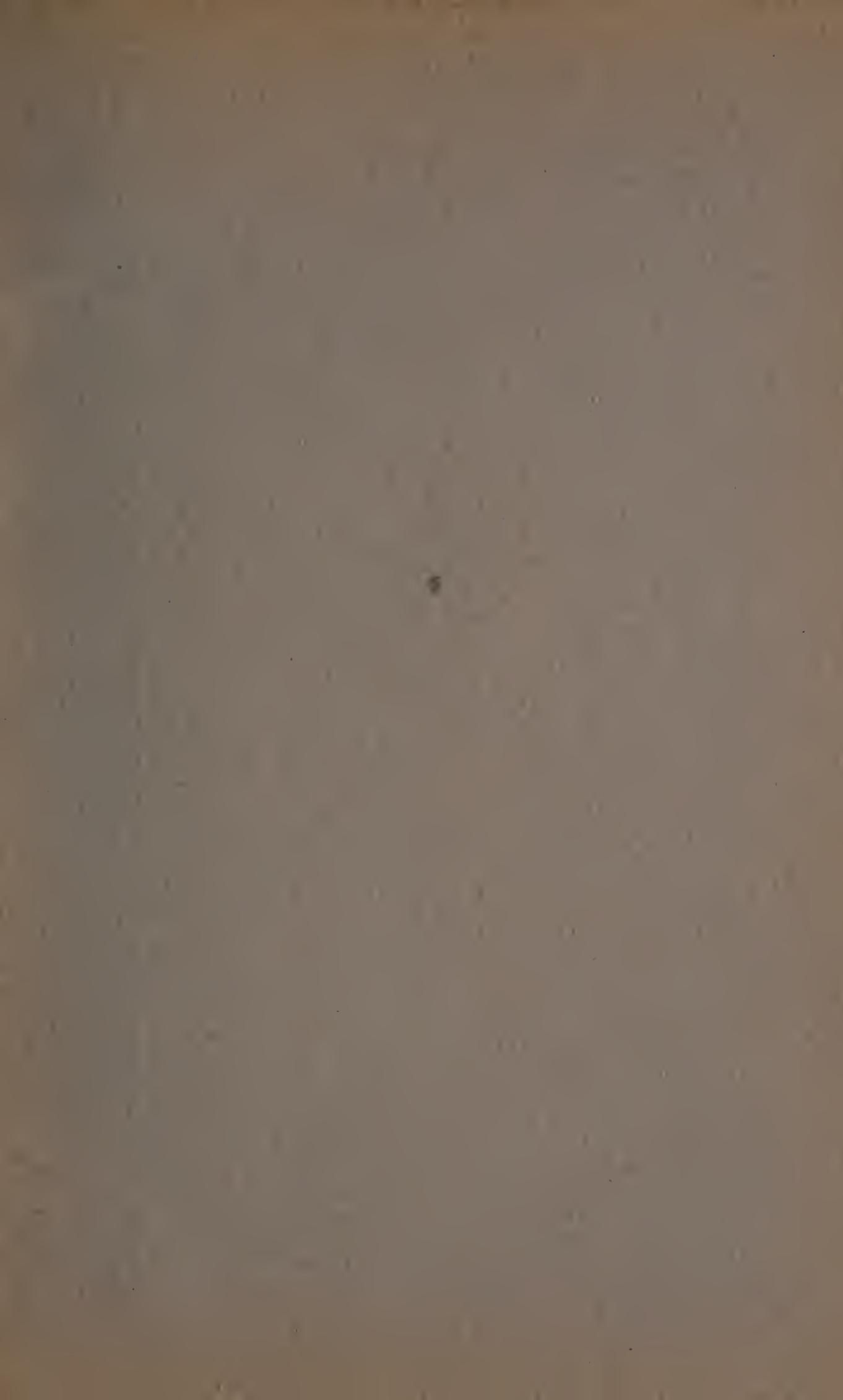












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